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The Journal

OF THE

Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

VOLUME XVII—No. 9
WHOLE NUMBER 193

GRAND RAPIDS, MICH., SEPTEMBER, 1918

YEARLY SUBSCRIPTION, \$3.50
SINGLE COPY, 50c

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Office of Publication,
Powers Theatre Building, Grand Rapids, Mich.

Entered as second-class matter March 12, 1913, at Grand Rapids, Mich., under the Act of March 3, 1879.

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Vol. XVII

GRAND RAPIDS, MICHIGAN, SEPTEMBER, 1918

No. 9

Original Articles

REMARKS ON THE ACUTE ABDOMEN.*

F. GREGORY CONNELL, M.D., F.A.C.S.,
OSHKOSH, WISCONSIN.

My explanation for bringing to your attention a subject so time worn as "The Acute Abdomen," is that, I propose to consider part of this very large subject in a manner rather different from that in which it is usually discussed.

To come definitely to the point, by the "Acute Abdomen" is meant an abdominal emergency usually indicated by symptoms such as sudden severe abdominal pain, at first local, and later general, with tenderness, rigidity, nausea, vomiting, constipation, or diarrhea, fever, rapid pulse and leucocytosis, one or more.

I propose to classify these cases as follows: First: those that may be remedied by abdominal operation; Second: those that may not be remedied by abdominal operation.

In the first, the symptoms call for exploratory laparotomy which is automatically followed by the proper diagnosis and in turn rational therapeutics. In such cases the problem is absurdly simple and the fate of the patient rests, not so much with the operator who repairs the damage as with the physician who first sees the case. The repair of repairable damage of the abdominal viscera (granting the presence of surgical judgment on the part of the operator) is comparatively simple; on the other hand the cure of peritonitis, the result of such damage is difficult and the difference is due to the time allowed to elapse between the onset of the symptoms and the making of the abdominal incision. This class of cases, comprising the great majority of abdominal emergencies, I shall not discuss.

Class two demands attention, serious consideration and emphasis, because these conditions may be confused with class one, with

a resultant, ineffectual, if not detrimental, line of treatment.

Time will allow but brief consideration of a few of these various conditions; but even a mere enumeration of them will, I am sure, be a surprise to many and will explain the fact that the subject of "The Acute Abdomen," is neither a simple nor a settled question.

CLASSIFICATION OF CASE TYPES.

Cases of "Acute Abdomen" may be subdivided as follows:

1. May be remedied by laparotomy: (Not to be discussed at this time.)
2. May not be remedied by laparotomy:
 - A. Extra peritoneal:
 - (a.) Thoracic—1. Pulmonary.
 2. Pleural.
 3. Cardiac.
 - (b.) Retro-peritoneal: 1. Renal—Stone. Dietel's Crisis. Infarct. Uremia.
 2. Supra-renal.
 3. Vertebral, Sacro-iliac.
 4. Sub-peritoneal infection.
 5. Lymph glands; tbc., Typhoid.
 - (c.) Nervous—1. Neuritis, Herpes Zoster, Neuralgia.
 2. Myositis, Myalgia.
 3. Lead Colic.
 4. Tabes.
 5. Hysteria, Neurasthenia.
 - B. Intra peritoneal:
 1. Cardiospasm.
 2. Acute Dilatation of stomach or duodenum.
 3. Acute Gastritis—Acute Enteritis.
 4. "Ptomaine" Poisoning.
 5. Typhoid Fever.
 6. Angio-Neurotic Oedema.
 7. Enteroptosis—Gastropoptosis.
 8. Colitis.
 9. Intestinal Stasis.

*This paper was prepared for the Surgical Section of the 1918 convention of the State Medical Society.

10. Salpingitis.
11. Dysmenorrhea.
12. Pregnancy.

THORACIA CONDITIONS WITH ABDOMINAL SYMPTOMS.

Pneumonia of the right lower lobe can, especially in children, by irritating the tenth, eleventh and twelfth intercostal nerves, produce pain, rigidity and tenderness in the right side of the abdomen and may closely simulate Acute appendicitis. The disease may be ushered in with a sudden markedly high temperature; vomiting, abdominal pain, tenderness, right side rigidity, leucocytosis, and prostration may all be present. The abdominal tenderness is less characteristic and usually situated high, the resistance is less marked; but may be the same as in appendicitis. On the other hand severe inflammation of the appendix may cause diminution of the respiratory excursion and in the breath sounds of the right lower lobe, in this way tending to make the diagnosis still more difficult. The important point is to *think* of the possibility of pneumonia giving rise to the symptoms in question: notably in children with rapid respiration, dilatation of the al-nasi and high temperature. This will call for a careful chest examination, not confined to its anterior aspect, and in most cases, settle the diagnosis. The X-ray may be of great value.

DIAPHRAGMATIC PLEURISY.

Capps, has found that the visceral pleura is not sensitive to pressure or scratching of a wire, that such irritation of the parietal pleura produced pain; but that irritation of the outer margin of the diaphragmatic pleura, supplied by the lower six intercostal nerves, was followed by reflex pain in the hypocondrium and often in the abdominal wall as far down as the naval or even the groin; and when its central portion was irritated the pain was referred by the phrenic and the third and fourth cervical nerves, to the neck.

The following 23 mistaken diagnoses were made in a series of 61 cases of diaphragmatic pleurisy: 9 appendicitis, 6 cholecystitis, 2 perforation of ulcer of the stomach, 2 liver abscesses, 1 peritonitis, 1 renal calculous, 1 infectious lumbago and 1 brachial neuritis.

The skin and muscles of the abdomen are more sensitive to pain in referred pleural pain than with visceral disease. This is best elicited by pinching or scratching of the skin.

The referred pain in the neck and abdomen are usually induced, or aggravated, by cough

and deep respiration. Nausea and vomiting are more constant in visceral abdominal inflammation, but may occur, and be very pronounced in diaphragmatic pleurisy.

Hiccough is not a common symptom in diaphragmatic pleurisy contrary to the current belief.

CARDIAC.

In Angina Pectoris the pain is due to exertion, not food; the blood pressure is usually high; and the heart rarely normal, the attack is accompanied by great fear or apprehension of approaching death. The pain is usually referred to the left arm, but may be referred to the back, epigastrium, testes, leg or right arm. The facial expression is characteristic, the face is sunken, pale, and cold, with an expression of agony, anxiety and distress, quite similar, on superficial examination, to the "Facies Hippocratica."

Emphasis ought to be laid on the resemblance of some of these cases to surgical accidents. The sudden onset with pain over the lower sternal and epigastric region, nausea, vomiting, tympany, feeble pulse, ashy color, cold sweat and other signs of collapse make one think of such conditions as gall-bladder disease, acute hemorrhagic pancreatitis, perforation of gastric or duodenal ulcer, hemorrhage into the adrenal capsule, etc. Obrastzow, calls particular attention to this resemblance to surgical accidents which Herrick corroborates.

PERICARDITIS.

In acute pericarditis the symptoms are those of an acute infection, the disease is characterized by pain in the region of the heart, this pain may be referred to the abdomen to the region of the stomach, gall-bladder, or appendix. Fussell has seen pericarditis mistaken for appendicitis; but states that the mistake rarely occurs in the reverse way. Confusion with gall-bladder trouble is more common.

RENAL STONE.

The symptomatology of renal lithiasis has been very exhaustively studied by Braasch, who found great variations in the usually accepted signs and symptoms: for example: typical pain and tenderness in kidney region was present in only 117 of 251 cases.

In 26 pain, general abdominal,

In 30 pain, referred to gall bladder,

In 32 pain, referred to lower abdomen,

In 56 pain, referred to both sides of abdomen,

In 40 pain, referred to affected sides of abdomen,

In 16 pain, referred to non-affected sides of abdomen.

From the above, one is justified in concluding that the pain of renal lithiasis may be very typical.

Braasch, likewise found that hematuria was present in 141 of 251 cases or 56 per cent., a rather indefinite percentage; and to make matters worse, in 500 consecutive routine examinations in cases without symptoms of renal trouble, 146 showed microscopic blood in urine. Cabot, in 150 cases of renal and ureteral stone found the urine persistently normal in 14 per cent.: and hematuria absent in 32 per cent. The present of microscopic blood in urine may be due to pathology in ureter, prostate, bladder or kidney. The mere fact that there is an acute abdominal inflammation may cause microscopic haematuria.

Therefore too much stress must not be placed upon the presence of a few red blood cells in the urine, as indicative of renal colic. The X-ray failed to reveal urinary calculi in 10-15 per cent. of Cabot's cases and 11 per cent. of Brasch's cases.

Confusion between abdominal conditions and kidney stone is not uncommon, for instance, the late Maurice Richardson wrote an extensive article, the last before his death, on "The Error of Overlooking Ureteral Stone Under a Diagnosis of Appendicitis:" and Hugh Cabot in 1915 reported 157 cases of stone in kidney and ureter, in 26 of which unnecessary abdominal operations had been performed as follows: Appendectomy 10; Exploratory Laparotomy 7; Fixation of kidney 4; Operation for gall stones 1; Decapsulation of kidney 1; Salpingo-oophorectomy 1; Supra-pubic cystostomy 1; Adhesions 1.

In a recent contribution, Brasch states the 143, or practically one-third of total number, in his series of nephrolithiasis had had previous laparotomies performed elsewhere for relief of pain: 83 had stone in right kidney; 55 stone in left kidney; 5 bilateral.

21 with stone in *left* kidney had previous operations on the right side for appendicitis or gall bladder disease.

Acute Hematogenous Infection of Kidney, Acute Septic Infarct of Kidney.

Brewer analyzed 13 cases and found: 11 in women and 11 on right side, chill at onset in 4; sudden high temperature at first examination in 12; in 3 cases marked remissions in

others constantly high; in all cases pulse high. In 12 the chief complaint was *abdominal* pain; in 4 right iliac. Costovertebral angle tender in all, muscular rigidity frequent, leucocytosis frequent and microscopic blood in urine of all, but one.

In Brewer's 13 cases, an abdominal incision under mistaken diagnosis was made three times. In Cobb's 8 cases the same mistake was made in 3 instances.

That this type of case is not as uncommon as was previously supposed is shown by the fact that Mason, in 1912 collected 28 cases and Cunningham, in the same year reported 8 additional cases.

A resume of a personal case in which 2 days after an unsatisfactory abdominal operation nephrectomy was followed by a satisfactory outcome is here appended.

SUPRA RENAL CAPSULE.

Addison's disease, or Syndrome, is characterized by: (a) physical and mental inertia, (b) pigmentation, (c) gastro-intestinal symptoms.

Under the last; anorexia, nausea, vomiting, constipation and later diarrhea, enteroptosis, pain in lumbar and iliac regions, which may be severe, with rigidity and tenderness on palpation in right iliac fossa may at times be attributed to intra-abdominal disease.

One meets this syndrome frequently in cases that come under observation with a diagnosis of chronic appendicitis, but one hesitates to diagnose Addison's disease.

That there may be *acute* pain in this class of cases is beyond question, and Tice, cites a case in point. The diagnosis of Addison's Syndrome "and appendicitis" was made. In a "subsequent note" it is stated that there was exacerbation of the appendicitis which led to transfer to the surgical service and laparotomy was performed in which the findings were negative, except for "an old adherent appendix" which was removed. Death occurred the following day and an autopsy was not permitted. This "exacerbation of the appendicitis" was evidently a misinterpretation of the symptoms, being instead, a terminal stage of the Addison's disease.

Brodnitz calls attention to the "violent intestinal colic occurring in attacks, failure of the peristalsis, and isolated intestinal distention." And Ebstein says that "In the terminal stages there is excessive vomiting, abdominal pain and constipation, the abdomen is retracted and the walls tense, the pulse becomes small

and there exists in total, the picture of peritonitis."

Hemorrhage or suppuration may lead to sudden destruction of the supra renal glands. This condition is but rarely recognized, was first described by Virchow, and is characterized by very severe symptoms together with peritonitis which ends rapidly in death.

Sub-peritoneal or Retro peritoneal Cellulitis or Infection calls for careful differentiation from intra peritoneal infection, as they are not in the range of operative treatment, are not remedied by appendectomy or by opening and draining the peritoneal cavity, as such operating does not attack the field of infection: namely the subperitoneal cellular tissue, and such cases often continue to death by general bacteraemia, pneumonia or nephritis.

Enlarged mesenteric lymph glands, usually tubercular, as in "Tabes Mesenterica"; or abdominal Hodgkins' disease, in the right iliac fossa, because the lower end of the root of the mesentery is located on the right side, when discovered on palpation in conjunction with acute abdominal symptoms and temperature may lead to confusion with an acute appendicitis.

A personal case in point, enlarged lymph glands of mesentery in right iliac fossa, in which a gland was removed for diagnosis which was followed by meningitis and death.

NERVOUS.

In a study of abdominal pain it is of interest and of profit, to make a comparative review of causes of pains within the cranial cavity. Fussell cites seven grand divisions of causes of headaches, with this formidable and confusing array of possible causes for pain in the head one might well pause and consider, before jumping at a conclusion without careful investigation, in cases of pain in the abdomen.

Of these we will be able to consider only a few: Herpes Zoster of the face and upper intercostals is recognized frequently, but of the lower intercostals and the first lumbar, if as frequent it is but rarely recognized.

The location of the pain often leads to a diagnosis of intra abdominal disease, and the hot applications which are frequently applied may cause one to misinterpret the presence of vesicles. Such cases have been operated upon for acute appendicitis.

The occurrence of Zoster of the viscera may no longer be questioned.

MYOSITIS AND MYALGIA.

The fact that localized pain tenderness and rigidity may be due to pathological conditions within the substance of the abdominal wall seems to have been consistently overlooked. A myositis in certain localizations of the abdominal wall, if unrecognized might readily be confused with intra abdominal lesions.

The headaches that are accompanied by areas of induration, usually at the origin or insertion of muscles in the scalp and neck, might well be studied more carefully, and the occurrence of similar phenomena in the abdominal wall might clear up some of the uncertain cases of abdominal pain.

LEAD COLIC.

The colic of lead poisoning has frequently led to unnecessary laparotomy, because of its very close simulation of intra-abdominal disease.

The symptoms of lead poisoning are anaemia, (stippled red cells), constipation, general abdominal rigidity, and colic, peculiar in being relieved by pressure, pulse slow and of high tension, with the characteristic Burton's Lead Line, and an absence of temperature and leucocytosis.

The true lead line is not *on* the gum, but is *in* the gum, and in its incipency is not a line, but a series of dots (the result of decomposition of lead in the mouth by the H₂S of decomposed particles of food) and will not be removed by cleaning. The line is present, unfortunately, in only half the cases of plumbism and is best seen by the aid of a magnifying lens in a good light, but if discovered, the diagnosis is positive. In securing the history, it is well to remember that plumbism may occur in occupations other than that given as "painter."

TABES.

The gastric crises of Tabes has until lately in the minds of many, and is still in the minds of a majority of physicians, been considered a rare, unusual and late manifestation of cerebro-spinal syphilis.

That many cases of gastric crises have been mistaken for acute abdominal lesions has been more or less imperfectly realized, but Nuzum's article entitled, "Needless Surgical Operations from Failure to Recognize Tabes Dorsalis," is of great value in attracting attention to the frequency of the slipshod or careless methods in arriving at a diagnosis.

Nuzum collected and analyzed the records of 1000 cases of Tabes treated in Cook County

Hospital during the four years 1910-1915, in which 97 needless operations had been performed upon 87 patients.

The surgeons' diagnoses in these cases were as follows.

Gastric ulcer	19
Gall stones or cholecystitis.....	19
Appendicitis	18
Salpingitis	13
Exploratory Laparotomy	9
Renal calculi	7
Postoperative adhesions	7
Tumor of cauda equina	1
Sciatica (Nerve stretching)	1
Meningocele	1
Ectopic gestation	1
Peritonitis	1

Total number of operations....97

The occurrence of real, bona-fide abdominal pathology in conjunction with *Tabes* must not be lost sight of, just because a person has *Tabes* it in no way eliminates the possibility of an acute abdominal emergency, or any other type of an emergency, and it is just such possibilities that make the personal equation of the diagnostician of so much importance.

Cabot says, "What we have learned lately is: (a) That we must suspect the possibility of *Tabes* even when the pupils are normal and must investigate this possibility by spinal puncture: (b) That any sort of gastric abdominal pain or distress may be due to *Tabes*."

NEUROSES.

Hysteria, with its protean manifestations may, of course, be mistaken for intra-abdominal lesions.

"Hyperaesthesia" or *Clavus Hystericus*," so well known, if transferred to the right iliac fossa would many times be operated upon with a diagnosis of appendicitis.

Still there is no reason why the same severe pain may not occur in the abdomen, instead of the head.

Such tender spots do occur in the hysterogenetic points, viz: the breast, trunk, spine and upper and lower abdomen, and it is the type of painful spot in the lower abdomen that has been responsible for the ovariectomy furor; and now the appendectomy craze.

Tympanites or phantom tumor may likewise confuse the issue.

Careful history taking and complete examination with the discovery of evidence of vasomotor instability, anaesthetic areas, or superficial tenderness greater than that elicited by deep pressure, with an absence of temperature or leucocytosis will usually prevent error.

Owing to limited time it will be impossible to consider at this time the second sub-division, that is Acute intra peritoneal conditions that may not be remedied by laparotomy.

CONCLUSIONS.

I realize that these remarks have been rather brief and sketchy, that it has been in fact a mere running commentary upon a certain phase of surgery that is becoming more important. Other confusing conditions should have been included; differential points may not have been sufficiently and properly emphasized, but my effort will have been worth while if I have been successful in calling to your attention the fact that these various conditions may simulate intra-abdominal lesions, some of which may have slipped your mind; and that a diagnosis, to be worthy of the name, must be based upon a careful history of the case, complete observation and accurate interpretation of the data so acquired.

As showing the importance of careful history taking, Behlow says, "From a careful history one can make a positive diagnosis of the primary or major conditions in 53 per cent. of the cases."

If the above possibilities are kept in mind and each case given careful study our unsatisfactory results will decrease. This fact has been well recognized for centuries and has been consistently neglected, as has been shown by DaCosta in an article on "Principles of Surgical Diagnosis," in which he quotes Benjamin Franklin—"Want of care does more damage than want of knowledge," and Sir Wm. Cull—"We make more mistakes from not looking than from not knowing."

The coincidence of curable surgical lesions in individuals afflicted with non-surgical and incurable disease must be recognized and the fact anticipated: that the cure of a definite surgical disease in a chronic neurasthenic does not necessarily mean a cure of the neurosis; or in the trite words of Deaver, "The abdomen will be found to be a veritable Pandora's box of troubles, which do not, however, always fly away when the box is opened."

GROUP MEDICINE—THE DEVELOPMENT OF THE PRIVATE PAY CLINIC.*

ALEXANDER W. BLAIN, M.D., F.A.C.S.,
Surgeon to the Jefferson Clinic,
DETROIT, MICHIGAN.

Civil practice does not differ from military practice so far as the end object of the physician is concerned, i. e., to get the patient back to the firing line in the shortest possible space of time. It makes little difference whether the patient is the head of the family, the mother with her numerous responsibilities or the children in school. It makes no difference what the social status of the patient, whether a wealthy banker or his wife, or the day laborer and his family. The result to be attained remains the same.

In Europe, in the past, two classes of patients received efficient treatment; the wealthy and the very poor. The wealthy obtained relief through their ability to secure the services of numerous specialists, although with the consuming of much time, the poor through the free hospital dispensaries and university clinics. The same state of affairs is gradually taking place in this country. The middle class, the back bone of our country, are to-day receiving the poorest grade of medical service, nor are the medical men who attend them being properly compensated. I propose in my address this afternoon to discuss this subject and also to discuss its solution.

It is now conceded by all, I believe, that the practice of medicine is no longer a one-man job as in the past. It has developed to such a breadth and is still advancing at such a rapid pace that no one man can hope to become efficient in all of its branches. This has led to the development of many specialties more or less limited in scope but possessed of a higher type of efficiency.

The clinical and roentgenological laboratories as developed during the past ten years have been of inestimable value to the practitioner as aids in diagnosis and likewise in the treatment of the sick, and thus in increasing the usefulness of the physician to the community.

The time was when it was unethical to talk of finances in connection with the practice of medicine. That time should pass and more thought should be given by physicians in con-

sidering the business side of practice. It should be a more frequent subject of conversation at medical meetings. The time has arrived when a physician to be efficient must have money in such sufficient quantities, first, that he may meet the ever increasing cost of necessities to insure happiness in his private life, and second, that he be able to spend the constantly increasing amount necessary for travel and study, instruments, laboratory equipment, increased office space and proper office assistants to enable him to do efficient work.

The time was when the "good doctor" was the man that was "going day and night." There are still many doctors who are going day and night, but I doubt if the adjective "good" applies to them. There is a limit to the physical ability and endurance of all men, even physicians. Industrial institutions have found that to secure the best results men should work a limited number of hours per day—usually eight to ten—and that as the length of the work day increases their efficiency decreases. Since doctors are but human, what is their efficiency after fourteen or fifteen or eighteen hours of work? It is low and the public is the loser, as is also true of the "good physician" in the long run. The great war in which we are now engaged, with its inestimable sacrifice on the part of so many in the medical profession will, we hope, teach that which is so valuable in all endeavor—system and the conservation of human energy.

The family physician is gradually becoming a thing of the past—this due to no effort on the part of the profession. The patient now is seeking the particular physician for his individual case, disregarding the family doctor. Why? Because he has too often been found lacking. In all too many instances the patient has turned from the medical practitioner to the osteopath, to Christian Science, etc., although as a rule he has consulted the medical practitioner first. As so many diseases are self-limited it is not surprising that all men in practice and all systems of treatment have their enthusiastic supporters.

The physician often fails because he cannot become expert in all the branches of medical science. He makes too many mistakes in diagnosis either through lack of time or through lack of facilities such as the X-ray and clinical laboratories afford, and second because he cannot apply the treatment necessary—no man can develop the mechanical technique necessary to cure all of his patients.

*Chairman's address before the Surgical Section of the Michigan State Medical Society, Battle Creek, May 8, 1918.

If the physician is honest he does not divide fees and this keeps him from referring many patients because he does not see how he can become a clearing house for sick people, sending them first to one specialist and then to another and still keep the wolf away from his own door. Second, the patient may not have the money to pay the high fees of the specialists to whom the physician might want to refer him and again the physician hesitates.

These questions then arise:

(1) Is the medical profession living up to its high reputation in continuing the present system of treating the sick, especially those of the great middle class?

(2) Is the public receiving the full benefit of the present sum total of knowledge of the profession?

(3) Will the extension of the instruction offered to medical students materially improve the service at present given to the public?

My answer to the above questions is most emphatically No. Granting two contentions, first that there is a limit to the working ability of all men, and second, that the practice of medicine in the present sense of the word is too large a field for one man to master, it is obvious that the medical profession has reached the zenith of its power for good as based on its present system. These ideas are not new in the commercial world, nor in the medical world for that matter, but the idea has been very slow of adoption on the part of the profession.

Theoretically the closed hospital with a limited staff is a practical remedy for some of our shortcomings. But since the method of appointment of hospital staffs is largely political, the jealousy engendered has been, heretofore, the stumbling block and, except for the polyclinic departments, there is little co-operation between the various members of the staff of any large hospital.

The present standardization of hospitals by the American College of Surgeons will mark an advance in American medicine second only to the standardization of medical colleges, and will go toward improved hospital service for the public. The American people are gradually becoming hospitalized, but be the hospitals as popular with the public as they may, the great mass of sick people will always be treated outside such institutions. Nor is the hospital a necessity for most diagnosis and treatment, as has been demonstrated by the Mayo clinic—a private clinic, a pay clinic, and

at the same time the most efficient medical organization in the world to-day. The great mass of diagnosis and treatment is done outside of the hospital, it being at best, a hotel for the temporary care of the non-ambulatory sick.

The housing of the clinic staff is best in a separate building. This is, as I have demonstrated before, is more economical and efficient than in offices in the large office buildings. The association of a large group of physicians in an office building does not constitute group medicine and has but few advantages over the home offices of the individual physicians, since the same competition exists with its attendant jealousies and inefficiencies. Such association is purely for reasons of friendship or finances and has nothing to do with a group organized for mutual professional help and growth.

The question then arises, how is such a clinic to be organized? If a town has three men, it is safe to say that each of them is attempting all classes of work, and each in addition, is spending no small amount of time in attempting to distance his competitors. Properly associated, one would be a surgeon, one an internist and one a pathologist and roentgenologist and the patient should have the benefit of the knowledge and skill of all three. As it is now the patient too often consults the three individually, completing the round without a diagnosis—a correct diagnosis which, while not always possible under most favorable conditions is certainly far more probable by the group plan of dealing with a case. To be sure the above principle would not apply to a typical case of measles, but it certainly is true of every chronic case. The clinic in a larger city could further increase its efficiency by still more workers and by further limiting their individual work. In the clinic of which I am a member, the following divisions are made: Surgery, Medicine, Obstetrics, Genito-Urinary diseases, Nervous and Mental diseases, Eye, Ear, Nose and Throat, Orthopedic Surgery, Roentgenology, Clinical Laboratory, Diseases of Children, Dermatology, Anesthesia, and Art as applied to Medicine. To this are added assistants for various departments to relieve the various heads and especially for night work. Much of the routine and burden can be accomplished by graduate nurses and medical students. It is wrong to attempt to work all day and all night. If there is one factor which has tended more than any other to lower the standard of the profession it is the individual

lowering of efficiency from working too many hours. This has not been due to over-avariciousness on the part of the physician, but has often been a necessity for financial reasons, a product of our present system.

The service as often rendered the patient by the busy doctor who asks a few questions and writes a prescription is no more scientific and of no more value to the patient, except accidentally, than treatment by the osteopath, the chiropractor or the Christian Science healer. The practice of medicine is brought into disrepute, not by the profession in toto, but by the individual.

Group medicine will go far towards regaining the confidence of the American people in medicine, towards developing the so badly needed clinical research. Such development of the medical man from an over-worked, inefficient individual to a highly capable and efficient unit, enables him to apply the knowledge he possesses, giving to the public that which they have a right to expect from a learned profession, and yet insure to his private life, some of the joys of the day laborer.

The development of the private pay clinic organized on the same principles as some of the well organized polyclinics of the present time is, I believe, the remedy for the present shortcomings of the medical profession in their relation to the community. Richard Cabot has been preaching this doctrine for years. This will give the public better service at a lower price, with a greater saving of lives as well as time. It will also tend to make better medical men, yet giving them more hours for needed recreation and study and financially compensate them far more adequately than is possible under the present system.

727 Jefferson Ave., East.

REPORT OF A CASE OF LIPODYSTROPHIA PROGRESSIVA, WITH OBSERVATIONS.*

BLANCH N. EPLER,
KALAMAZOO, MICH.

This disease is rare, though it is quite possible that the conditions are more frequent than reported.

Two cases aside from the one presented are reported in the United States, one by Charles Harrman, New York, and one by Irving J. Spear, Baltimore, in the Archives of Internal Medicine. Twenty-four cases have been report-

ed, two typical ones only being in males. These cases were summarized by F. Parks Webber in the Quarterly Medical Journal, British. 10-1916-1917, from England and Germany.

A. Simons of Berlin in 1911 applied the term Lipodystrophia Progressiva to this disease which is characterized by progressive emaciation of the face, neck, arms and body, with an increased fat deposit in the gluteal region and lower extremities.

The results are very trying to the patient herself, and if not recognized, to the physician also.

Differentiation must be made from those diseases which cause wasting, such as

1. Tuberculosis, Nephritis, Intestinal.
2. Amyotonia Congenita.
3. Primary Myopathies as Prog. Muscular Dystrophy.
4. Progressive Neuropathic Muscular Atrophy.

The disease begins at about six years, or before twelve.

CASE.

E. G., now seven, one of twins, seen first at two and one-half years in consultation and since then at intervals. Treatment was of no avail. Nothing was found in the literature at that time on the case, and the diagnosis was not made until later, when interested in the fat dystrophies Spear's case drew my attention.

Complaint.—Progressive emaciation of the face and upper part of the body.

Family History.—Mother 28 when the patient was born, living and well. Father 29 when the patient was born, living and well, somewhat nervous. Grandparents, maternal: died of tuberculosis when the mother was two years old, grandfather died of old age. Paternal, grandfather; living and well.

No history of disturbed fat metabolism or conditions bearing on the case.

Personal History.—Child of third labor, one of twins, the first born, weight seven pounds. The second twin was transverse, weighed six pounds, lived at birth, and was resuscitated only after forty minutes hard work. All labors instrumental because of inertia.

All children are well; two older boys of nervous temperament (may be due to early care).

Patient always active and bright and always fought for herself; nursed to ten months, well until at one and one-half she had measles in light form.

Present Illness.—At two and one-half years the mother noted the thinning of the child's face with a drawn expression. No other disturbance noted, and the child was taken to a physician. No improvement from treatment and the neck, arms and body

*Presented at Michigan State Medical meeting, Battle Creek, May, 1918.

gradually became thinner and scapulae prominent; the legs were normal, mother considers them plump now.

Present Status.—The child at two and one-half, when first brought to me, looked like a case of malnutrition, with the appearance of a malnutrition infant. Examination was otherwise negative. Saw the child occasionally, no improvement resulted and there was a continual loss of fat. At six and one-half years the examination showed the following:



Epler's case at 2 years with twins.



Epler's case at 3 years with twins.



Epler's case at 6½ years with twins.

Bright, interesting, wizened faced little girl; head and face prominently large because of the absence of fat; on smiling the lines of the face became prominent, giving the child a cadaverous aspect.

Eyes, mouth, teeth, glands and neck with the exception of thinness seemed normal; scapulae and ribs prominent, arms thin, buttocks and legs plump and normal.

Skin: color fair; Skin picks up from the muscle and seems normal; Subcutaneous fat absent.

Stools in the gross normal.

Measurements

	Right	Left	Twin
Biceps	16 c.m.	16	17½ & 17
Forearm	15½	15	17 & 16
Thigh	31	31	
Calf	21½	21½	
Ankles			
Chest	35 (Mammary)		
	56 (Below Mammary)		
Waist	50		
Crest of Ilium	55½		
Anterior superior spine	52		
Buttocks	56		

Heart, lungs, liver and spleen normal on examination.

Urine,

Blood, erythrocytes, 4,288,000. Haemoglobin 75%.

White blood cells 4,800. Color index 80%.



Epler's case at 6½ years with twins.

Differential Count, Polynuclears, 62%. Transitionals, 2%. Eosinophyles, 2%.

Slight Poikilocytosis. Small lymphocytes, 30%. Large lymphocytes 4%. Wasserman, Negative.

Mental Condition.—Bright.

Neurological.—Reflexes, Achil'es Tendon, Radial, Biceps, Triceps, Babinski—normal.

Treatment.—The only indication for medicine seemed to be an iron tonic.

Clinical findings of cases reported in literature.

The disease usually begins between six and twelve years of age.

Confined to the first half of life and continues until the fat disappears.

Larger number of cases reported in Hebrews.

The condition is a bilateral symmetrical one.

Gluteal fat may be the first symptom as in the case of a five year old girl, the atrophy beginning at eleven: Atrophy may begin simultaneously with the gluteal fat.

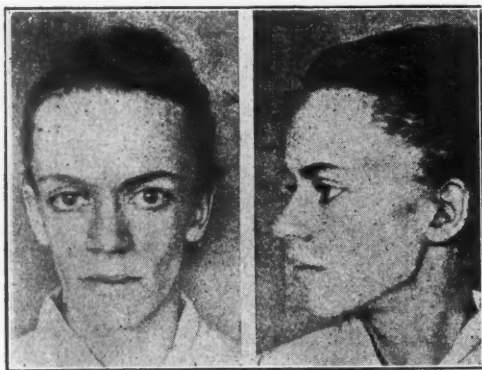
A fair proportion of the cases, follow measles, questionable measles, questionable fever, diphtheria, scarlet fever, pneumonia with local pains, and one case followed eye injury with definite pains.

Outlook for the general condition, good.

Treatment, endocrine and other forms gave no results.



Spear's case, age 5.



Spear's case, age 15.

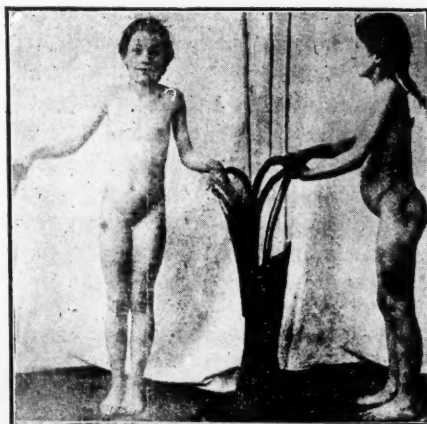


Spear's case, age 15.

TWO RECENT TYPICAL CASES IN MALES.

1st. Now 32 years of age, followed typhoid fever at ten years; showed alimentary glycosuria and excessive accumulation of fat on the buttocks and on the lower extremities.

2nd. Now 29 years of age, showed emaciation at



Bolssom's case. Age 10. Hyperthermia of fat on abdomen, buttocks and thighs and hip. Emaciation.



Spear's case, age 10.

six years of age after an accident on the ice which was nearly fatal; showed alimentary glycosuria but no fat hypertrophy.



Simon's Berlin case, 21 years of age. Gluteal fat at 5. Emaciation at 11. Injected human fat in face. Only temporary relief.

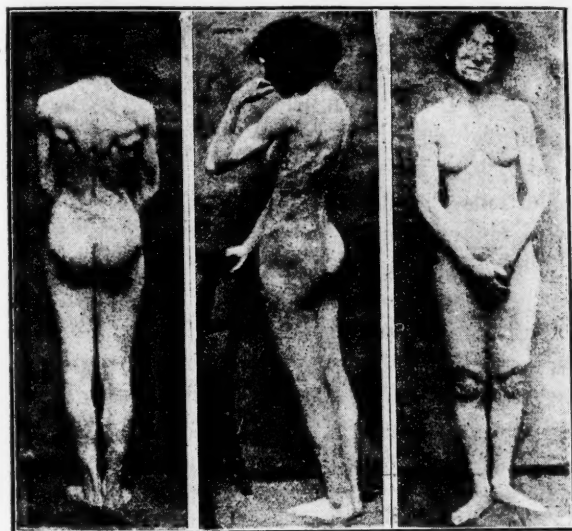
CASES SHOWING SUGGESTIVE RELATIONSHIP.

1. In 1916 Cantley, London, showed a case of incomplete form. A man of 25 with abdomen and lower extremities, excepting the feet, very

fat; typical emaciation began at six, after diphtheria, numbness on the outer side of the leg.

2. *Laignel and Levastine* presented a case of Segmentary Adiposis of the lower limbs in a woman of 39 with enlarged legs which began at 22; the fat hypertrophy extending to thighs and buttocks. Typical thinness of the remainder of the body.

3. *Casès in Males of Bilateral Atrophy.* Bilateral atrophy of the subcutaneous tissue of



Campbell's, London, case. 2. Hebra began at 6 after measles at 6.

the face, thought to be allied with facial hemiatrophy may be a modified form of lipodystrophia progressiva. Some of these cases were associated with skin lesion complications, as lupus erythematosus.

4. *Tiffuse Symmetrical Lipomatosis* of the English in which the sides of the face, shoulders, upper arms, back and neck are involved in fat hypertrophy occurring only in males, mostly alcoholics, is a direct opposite picture of lipodystrophia progressiva. (One of these cases improved on thyroid treatment.)

5. *Gilchrist-Johns Hopkins Case* (Johns Hopkins Bulletin, October, 1916) of local fat atrophy of the legs is a most valuable contribution in its pathological findings as to what may take place in lipodystrophia progressiva. The case may prove one of this disease.

6. *Sundvall*, University of Kansas, has just reported a case of localized atrophy of fat cells in the subcutaneous tissue in a patient of 19, this had been previously diagnosed *Muscular Atrophy*.

After six contagious diseases in her life of 17 years, during which she was "tired all the time," she developed cholorosis and two atrophic areas on the left leg and left thigh.

The left leg and thigh became smaller than the right and showed dilated superficial veins, probably due to a thrombosis from cholorosis.

Microscopical sections showed dense fibrous tissue taking the place of the normal cutis, and absence of fat cells and of nuclear elements with a decrease of capillaries and lymph vessels.

On rubbing the fingers over this area there was felt prominent firm strands of fibrous-like tissue.

The gelatinous like substance in place of the fat suggested a serous atrophy which does occur in wasting diseases.

The complete fat atrophy seemed absolutely independent of any infectious process. This case shows a similarity to Gilchrist's.

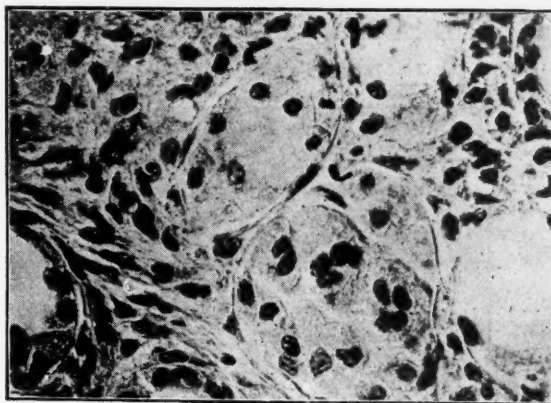
PATHOLOGY OF LIPODYSTRAPHIA PROGRESS.

Microscopical sections of the skin show complete absence of fat excepting at the root of the follicles of hair or gland.

Gilchrist shows in his case that local fat atrophy is preceded by the ingestion of the fat by large phagocytic cells, macrophages. This could be the process in typical Lipodrstrophia Progressiva. His case was as follows:

Girl of eight, good family, gave a history of toxic erythema attacks with swelling of the joints. Lumps under the skin of the legs appearing externally as dimples.

Bright, with the face of a much older child. The lesions extended from the inguinal region



Gilchrist's case.

A high magnification of the microphagas showing their foam like photoplasm. In the lower right hand corner they are seen surrounding a fat space. Immediately to the left of this area they have completely filled the fat space.

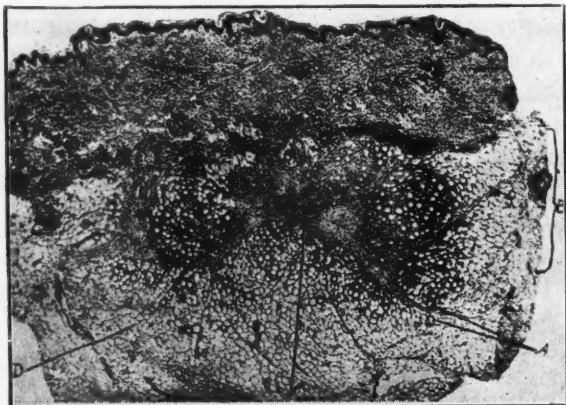
BLOOD.

to the ankle on the inner and posterior aspects.

The smallest lesion of a pea size was of an irregular or round bluish depressed macule, which later formed sunken patches. Sclerotic movable branching strands extended from these patches into areas not atrophied.

White blood cells 15,600. No cholesterin as in Xanthoma.

Microscopical section showed changes only in the fatty layer. In the upper half of the fatty



Gilchrist's case of local fat-atrophy.



Skin: A Lipodystrophia Skin Proof. B. Normal.

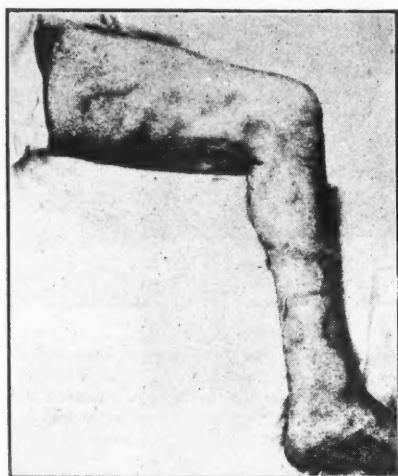


Fig. 2. Photograph of a printing of the inner portion of the thigh and leg, by Prof. Max Broedel. Gilchrist's case of local fat-atrophy.

layer was seen a small cellular nodule divided by connective tissue strands and containing near the center plasma cells and at the periphery large endothelioid cells, small round

cells, polynuclear cells, plasma cells and numerous striking cells around and in the remaining fat spaces.

The protoplasm of these cells presented a foam like network, containing from one to three nuclei. Large giant cells were found.

These large cells replaced the fat globules and contained lipoid material but showed no cholesterin as do xanthoma cells. The fat was taken up into the cytoplasm of these large phagocytic cells, and the fat area later became infiltrated with fibrous tissue. This was later absorbed, leaving a soft elastic skin easily picked up from the muscle.

The role of these macrophages seems to be to absorb as a foreign body, the fat which had undergone a chemical change or possibly a bacterial change, through an infective process.

The macrophages, here derived from resting tissue cells and endothelium of the capillaries, belong to the same class as Kupffer cells of the liver, which contain pigment in malaria and the anthracosis cells, of the bronchial lymph glands and the giant cells of tuberculosis.

Six months later the legs of this patient were emaciated, smooth, normal looking legs, with the exception of having no fat. The character of this process, as before suggested, could reasonably account for the process in Lipodystrophia Progressiva.

Gilchrist suggests that some metabolic blood process might cause such a change in the normal fat as to make it partake of the character of a foreign body.

ETIOLOGY.

The cause is unknown. Neither the clinical history nor the pathological findings show definite information on the etiology and it seems feasible to fall back upon the definite advances in the knowledge of diseases characterized by atrophy of muscle or other tissue, or fat hypertrophy or both; as this might be considered a dystrophy of fat.

Such advances in these diseases have been made in the study of carbo-hydrate metabolism and endocrine gland association.

In considering the etiology of lipodystrophia progressiva, it is well to bear in mind the following points:

1. Localization of the process.
2. Metabolic disturbances.
3. Endocrine gland association.
4. Previous infection.

The localization of fat hypertrophy about the gluteal region in this disease and also the lower extremities, is the first sign in some cases of

the disease, and occurs too early to be the fat acquisition of the normal adult female. This condition also presents itself in males in hypophyseal and gonad disturbance, as in eunuchoid conditions.

Localized fat characterizes the diseases of segmentary adiposis of the lower limbs, of diffuse symmetrical lipomatosis as in typical fat neck and of progressive muscular dystrophy in the fat hypertrophy of the legs.

In the study of this case of lipodystrophia as to the possible factors in the etiology, I have been interested in the valuable work on blood sugar and the dysfunction of carbohydrate metabolism, especially when associated with the fat dystrophy and I have been impressed with the possibility of reverse metabolic processes being a factor in fat atrophy.

The chemical findings in the disturbed metabolism in the two diseases upon which much work is being done, amyotonia congenita (Oppenheim) in which muscle tissue has been invaded by neutral fat and in progressive muscular dystrophy are somewhat similar.

In these two diseases the following findings were obtained:

Urine.—Creatinine is decreased or absent, and creatin is present.

Glucose is present, or in amyotonia congenita after feeding glucose.

Blood.—Hypoglycaemia is present.

Blood glucose curve in muscular dystrophy higher than normal on feeding glucose, while the retention of glucose in the blood is twice as long as in the normal.

Creatinine is diminished.

Cholesterin is diminished.

Stools.—In amyotonia congenita are pale, fatty and the condition is one of acholia.

The conclusions drawn are these:

The lowering or absence of creatinine in the urine means decreased muscle activity in these two diseases. The muscles resynthesizing the creatinin to creatinine.

In general a low creatinine output indicates a lessened tissue oxidation; the creatinin output depending on endogenous katabolism of the body.

The creatin increase or presence in urine means decreased sugar oxidation; and insufficient supply of glucose to muscle and occurs in starvation, under-nourishment or destruction of muscle.

Hypoglycaemia occurs when the glycogen storage in the liver does not meet the normal rate of the passing of glucose from the liver

into the blood, or when the rate of oxidation in the muscle from use or otherwise is greater than the formation from the liver. Formation of glycogen in the liver is under the control of the adrenal gland and possibly the pituitary and thyroid, and when the adrenals are impaired the liver loses its power to store glycogen.

Low Cholesterin in the blood suggests a possibility of adrenal impairment.

Now all of this seems to mean that the ingested carbohydrates is not changed into glycogen in the liver, either because of impaired liver functions or impaired adrenal functions, or that of other endocrine glands.

Adrenalized animals show glucose remaining in the blood and not stored as glycogen but as fat within the liver cells. Cushing finds this storage in hypopituitarism. It has been established that the thyroid and adrenal glands play a role in carbohydrate metabolism. It has been shown that the hypophysis accelerates carbohydrate metabolism and that large doses of the posterior lobe causes emaciation and muscle weakness.

We know that fifty per cent. of diabetics have early adiposity while the latest evidence shows that diabetes insipidus is controlled by pituitrin.

In some cases of adiposa dolorosa (Dercum's Disease) which is characterized by deposits of lumps of fat over the body there have been found tumors respectively of the pituitary, psammoma carcinoma of the pituitary and pathological thyroid and also dysfunction of the thyroid and hypophysis.

Internal secretions seem therefore to play an important role in nutrition and one gland or a disturbance of balance of several glands may impair normal metabolic processes while definite disturbances of the endocrine glands themselves do follow scarlet fever and other infections. Influenza especially, precedes hyperthyroidism.

In the study of the cases of lipodystrophia progressiva so far as I have been able to ascertain, there occurs no change in the internal organs, blood, urine or skull.

It seems plausible however, in the light of the work and interpretations on fat dystrophy and Gilchrist's case of local fat atrophy, that an infection producing an endocrine gland dysfunction may affect the carbohydrate metabolism and fat storage or use of the fat.

REPORT OF A CASE OF SITUS INVERSUS.

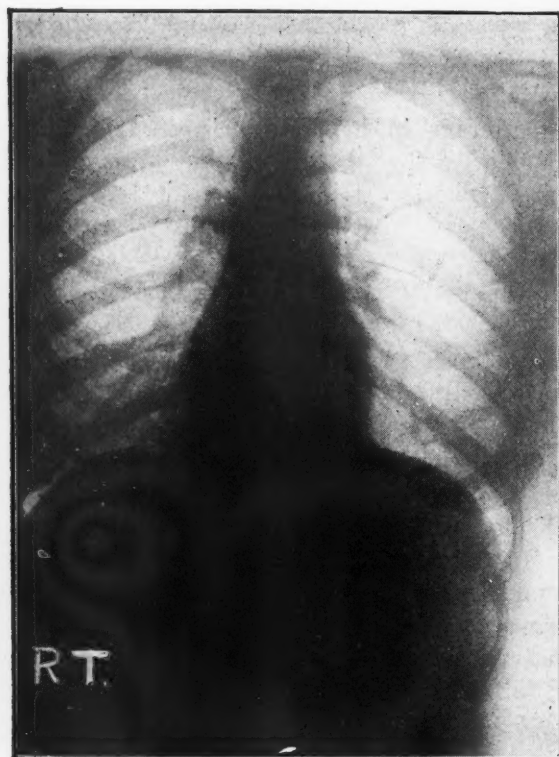
W. O. UPSON, M. D.

BATTLE CREEK, MICHIGAN.

(Associate Roentgenologist, Battle Creek Sanitarium.)

A study of the literature shows a large number of cases of transposed viscera reported from postmortem examinations and a larger number from surgical operations, but only a few have been reported from X-ray examinations. I am convinced that this condition is far more common than is usually supposed, but it is difficult to obtain a fair estimate of its frequency, owing to the fact that roentgenologists have re-

of Obstetrics, December, 1917. Sorge, in 1916, was able to collect only two hundred and four-



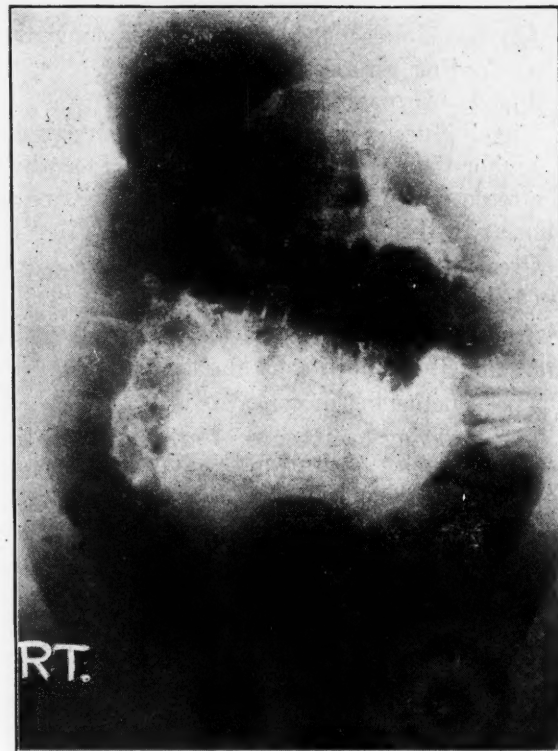
"All the angles at the base of the thorax are clear. The heart shadow is normal. The shadow caused by the great vessels is seen more extensively to the left of the spine. The spine is straight. The thoracic cage is regular. The heart shadow is reversed, the apex extending into the right chest, while the right border of the heart is a little to the left of the midline.

Right lung: The right lung root is unusually enlarged and contains numerous fibrocalcereous deposits.

Left lung: The left lung root shadow also contains some fibrocalcereous deposits.

ported so few of their cases.

Dr. J. H. Hartz reported two cases in the Medical Record of December 9, 1916, both complete transposition of the viscera. Dr. L. D. Bottsford reported one case of hydrocephalus with spina bifida, complete situs inversus (Journal of the Michigan State Medical Society, October, 1916). Dr. J. H. Jacobson reported twelve cases of left sided appendicitis with transposition of the viscera in the Journal



The stomach occupies a right sided position. The duodenal bulb is about an inch and a half to the left of the midline. The duodenum extends downward, a little to the left, then to the right, and the duodeno-jejunal junction occupies a position just to the right of the midline. The cecum occupies a left sided position. The hepatic flexure is on the left side. The splenic flexure is on the right side. The descending and iliac colon is on the right side. In fact, the entire viscera are practically normal, with the exception that it occupies a transposed position."

teen cases. According to that author, the first case reported from an X-ray examination was published by Vehemeyer in the *Deutsche Medizinische Wochenschrift* in 1897. Kerr, in ten thousand autopsies, covering a period of ten years, saw only two cases of this condition. Bland Sutton reported one case in three thousand abdominal sections. Gruber, in 1865 made an exhaustive study of the literature and collected seventy-nine cases of complete transposition of the viscera. In his collection, forty-nine cases were men, nineteen were women and there were eleven in which the sex was not mentioned. In seventy-one of the seventy-nine cases, both chest and abdominal organs were displaced. Of the abdominal organs alone, there were eight displacements. Kuchenmeiser, in 1883, increased the number to one hundred and forty-nine. Pic, in 1895, reported one hundred and ninety cases, which number represents all of the cases known to literature up to that year. Arneill, in an elaborate study in 1902 involving communication with the leading internists and anatomists, reported forty additional cases.

In looking over the barium meal examinations made by Case at the Battle Creek Sanitarium, I found the records of one complete and two partially transposed viscera.

The case which I wish to report, R. S., is an American, age 21, nurse. The family history is negative. Has never had any illness except the ordinary diseases of childhood. During the routine examination which is made of all applicants for the class of nurses at the Battle Creek Sanitarium, the fluoroscopic examination was made of the chest and the heart was found to occupy a right sided position, after which a complete examination was made, including the barium meal in which the following condition was noted.

CARDIAC CONDITIONS THAT DO NOT DISQUALIFY FOR ARMY SERVICE.*

COLLINS H. JOHNSTON, B.A., M.D.,
GRAND RAPIDS, MICHIGAN.

Member Medical Advisory Board at Grand Rapids, Michigan,
Member American Climatological and Clinical Association,
Central States Pediatric Society,
Michigan Trudeau Society, Etc.

It is evident to anyone in touch with the examination of recruits that no inconsiderable number of men with impaired hearts are being

passed into our new armies and the experience of foreign countries has shown that many soldiers whose hearts were damaged before the war have broken down under the strain of active service. This entails a great loss to the army and an unnecessary increase in the financial burdens of the country.

Most hearts with an organic lesion present such unmistakable physical signs that a correct diagnosis is not difficult. This is especially true when diastolic murmurs are present and the government has directed that recruits with such murmurs be rejected for all military service. But many impaired hearts present no physical signs whatever and in these cases symptoms become of especial importance. Realizing, however, that it is easy for a shirker to exaggerate his symptoms, some cardio-vascular experts on draft boards and at cantonments, in the absence of physical signs, discount symptoms in great measure or ignore them altogether. A considerable number of recruits complain of symptoms, especially shortness of breath, palpitation and precordial pain, in whom no signs of impairment of the heart are found on physical examination. But a diagnosis of heart disease should not be made from symptoms alone. Hence it is not surprising that in the limited time given to the examination of each recruit a considerable number of impaired hearts should escape detection. It seems, therefore, an opportune time to discuss some of the cardiac problems presented to examining boards and I cheerfully accepted our president's invitation to open a discussion with a brief paper on 'Cardiac conditions that do not disqualify for army service.'

Diastolic murmurs with practically no exceptions are indicative of organic lesions. Systolic murmurs on the other hand may be functional or organic. Functional murmurs at the apex may disappear on exertion, but exercise often brings out a functional murmur which entirely disappears with a few moments rest in the horizontal position.

SYSTOLIC MURMURS.

Thayer says that apical systolic murmurs which are heard in the recumbent position and disappear when the individual stands up are not of any pathological significance in the absence of other signs of cardiac involvement and that in true mitral disease such murmurs, if modified at all, become a little louder in the erect posture. On the other hand, functional murmurs often disappear when the patient is lying down, while an organic murmur, espe-

*Read in part before the American Climatological and Clinical Association at Boston, June 5th, 1918.

cially that of mitral stenosis, may be audible only in the latter position. Accentuation of the second pulmonic sound is also often more readily recognized in the prone position. It seems evident therefore that every case of suspected valvular disease should be examined in both standing and prone positions for their bearing upon murmurs as well as their effect upon the heart rate, and to avoid overlooking the presystolic murmur and thrill of mitral stenosis the heart should always be examined while the subject is holding his breath at the end of forced expiration.

Aortic stenosis must not be diagnosed from the mere presence of a systolic murmur which may be due to roughening of the aortic cusps or orifices, dilatation of the aorta just above the valve, thickening of the valve from arteriosclerosis, pressure upon the aorta by a mediastinal tumor, or anaemia. Other physical signs of aortic stenosis must be present, such as the characteristic slow pulse, hypertrophy of the left ventricle, systolic thrill and a feeble or absent second sound. You must not forget that the point of maximum intensity of the murmur of aortic stenosis may be in the pulmonary area where it may be mistaken for pulmonary stenosis or patent ductus arteriosus.

When a systolic mitral murmur is typically rough and loud and low pitched, and is transmitted to the axilla and occupies the entire systole, thus replacing the first sound, and when the murmur is accompanied by a thrill and accentuation of the second pulmonic sound, and especially if there is a history of one or more attacks of rheumatic fever or other acute infections, organic valvular disease should be strongly suspected. But incompetence of the mitral valves leads to varying degrees of enlargement of the heart so regularly that without it no systolic murmur at the apex, whatever its character, intensity or propagation, should be considered indicative of mitral regurgitation. Exceptions to this rule are so rare as to be almost negligible. In addition to this the apex beat is usually displaced to the left and its force increased. There is also usually accentuation of the second pulmonic sound. By far the most important of these associated conditions is enlargement in the size of the heart without which a systolic murmur at the apex should be entirely disregarded and must not be considered sufficient ground for rejection for military service.

CARDIAC HYPERTROPHY.

A diagnosis of hypertrophy should not be made merely from a displacement of the apex beat as this may be due to extrinsic causes such as adherent pleura, pleural effusion or pneumothorax. Neither should it be made from an increase in the area of pulsation alone as this may be due to extrinsic causes also. The only pathognomonic sign of hypertrophy of the left ventricle, as far as the apex is concerned, is *increased force of its impulse*, which of course may be hidden by overlying lung in emphysema, a thick chest wall, etc. A large diffuse apex beat with a forcible thrusting heaving impulse and extension of the area of dullness to the nipple line or beyond it are characteristic of dilatation and hypertrophy of the left ventricle. "An apex beat in or just outside the nipple line, with a forcible protusion during systole may be taken as evidence of moderate hypertrophy."¹ In nervous recruits the heart often beats rapidly and with an appearance of increased force, but on palpation it will be found that the beat is light and weak. But slight degrees of cardiac hypertrophy are not always easy to recognize. A recruit whom I recently sent to a cantonment with a diagnosis of functional mitral systolic murmur and in whom a teleoroentgenogram showed the heart to be normal in size was returned with a diagnosis of "mitral regurgitation, moderate degree of cardiac hypertrophy."

X-RAY IN HYPERTROPHY.

Having used the X-ray for several years in the diagnosis of enlargement of the heart and wishing to know what method was preferred by the Cardio-Vascular Division of the Army, I sent a letter of inquiry to the Surgeon General's office and received the following reply:

"If the X-ray is to be used in an attempt to determine accurately the size of the heart, the plan and tables recommended by Professor C. R. Barden in the American Journal of Roentgenology for December, 1917, are probably the most accurate and certainly the most elaborate.

"In the judgment of the undersigned, however, there is grave question whether the determination of the heart size by means of the silhouette is as accurate and as satisfactory for military purposes as is the method of careful physical diagnosis alone. In the case of seriously diseased hearts and of suspected aneurism the roentgenological evidence is often of great value, but in the case of hearts likely to be encountered in examining registrants for the draft, that is, hearts that are normal, or nearly normal in size, careful physical examination gives information so reliable and satisfactory that an additional X-Ray examination seems to me, usually,

unnecessarily elaborate and time consuming. The question as to hypertrophy is much better answered by the character of the impulse imparted to the palpating hand than by the size of the X-ray shadow. Slight or moderate hypertrophy without dilatation gives an increase in the volume of the heart so slight as to make it doubtful whether it can be recognized by any method of examination, but such hypertrophy does declare itself in the added force and lifting character of the impulse, even when it is difficult by any method to recognize an increase in size. A roentgenological examination of the heart is by no means free from factors of uncertainty, and while it sometimes furnishes very valuable information it seems to me very doubtful indeed whether in the case of men being examined for the army it gives any more accurate information than can be obtained much more rapidly and simply by skillful and careful physical examination."

There is a group of patients in whom there is unmistakable evidence of enlargement of the heart but no indication of valvular or nephritic trouble, and it is by no means infrequent to find patients with apparently perfectly normal hearts which present the electro-cardiographic deviations supposedly typical of hypertrophy. In the young a certain amount of hypertrophy and dilatation of the heart seems to be physiological and does not seem to impair its efficiency. McKenzie compares this physiological enlargement to the increase in size of the muscles of a blacksmith's arm.

MYOCARDIAL IMPAIRMENT.

But enlargement due to any pathological lesion such as valvular disease is *always* accompanied by a weakened heart muscle. In cases of murmur, therefore, in which the examiner is in doubt as to the existence of hypertrophy, and in the lesser degrees of enlargement where no gross lesions are found, as well as in a considerable number of cases with symptoms but in which no definite signs of organic disease can be discovered on physical examination, the important thing to determine is whether or not there is co-existent change in the cardiac musculature with resultant damage to the reserve power of the heart. Has the recruit any myocardial degeneration? Can he undergo physical exertion without distress? Is he fit for general military duty?

The diagnosis of heart disease is far too often based upon the existence of murmurs. Too much stress is laid upon valvular disease and not enough upon the condition of the myocardium which is the great sufferer in acute rheumatism and other infectious diseases

such as scarlet fever, measles, pneumonia and influenza.

Although it is impairment of the myocardium which gives rise to the well known symptoms of heart disease many such hearts may show no indication of weakness until called upon to do extra work. If a heart is healthy, exercise produces a rise in blood pressure, an increase in the pulse and respiration rate during which their normal ratio is pretty well maintained and a decrease of about one cm. in the transverse diameter of the heart.

After hopping one hundred times upon one foot or hurriedly walking up a couple of flights of stairs the normal rate should be resumed within two minutes, the respiration being the first to return the blood pressure next and the heart rate last. But if cardiac insufficiency is present this return to the individual's normal may take four or five times as long and shortness of breath, precordial pain or distress, vertigo, palpitation, or fluttering sensations in the chest may be complained of. The pulse may become irregular and the rate out of all proportion to the amount of exercise taken and the normal pulse-respiration rate is often considerably disturbed. The blood pressure may fail to rise and occasionally dilatation of the heart is observed. "When the exercise is poorly tolerated the patient appears exhausted, is markedly dyspnoeic, the pulse is very rapid and its return to normal is retarded. The expression of the face is often quite characteristic; the mouth is open, the lines about the face are exaggerated and the general expression is that of anxiety and exhaustion. Marked general tremor described by the patient as shakiness is a prominent feature in many cases. The symptoms complained of are precordial pain, shortness of breath, giddiness and weakness. These symptoms are not equally prominent but vary greatly in individual cases. When the exercises are well tolerated the picture is quite different; the appearance of the patient may be quite normal, the dyspnoea slight or absent, the pulse rate relatively low, with a more rapid return to the pre-exercise rate."²

In this connection I wish to call attention to the fact that Captain S. Calvin Smith of Camp Custer in a study of 35,000 men found that 80 per cent. had pulse rates of 80 or more before exercise. His conclusion was that the average pulse rate of 72 per minute is not the pulse rate to be found in active youths between twenty and thirty years of age and that the radial

rate may be expected to be ten or more beats higher than the classical average of 72.

FUNCTIONAL DISTURBANCES.

While breathlessness, pain and palpitation are the first and most important signs of cardiac insufficiency, when they are present it must not be concluded that the heart muscle is always at fault for many hearts tolerate physical exercise badly at first and some of these symptoms are common to both myocardial weakness and vasomotor instability. Many men who present themselves to draft boards have led sedentary lives and on account of defective development or general nervousness are poorly fitted for nervous and physical strain. Their hearts may be perfectly healthy, but during examination they suffer from palpitation or excited action of the heart, the beat becoming forcible and rapid. Sometimes a systolic murmur may be heard. Exercise may produce excessive fatigue and actual exhaustion, attacks of giddiness or fainting, palpitation and precordial pain. These men show no constant physical signs, but in many of them the heart rate may be abnormally high when up and about and moderate exercise may increase the pulse rate excessively. If told to lie down and breathe deeply and slowly for a few moments, the heart action often becomes less forcible and the rate slower. McKenzie believes that in at least 90 per cent. of these nervous or neurotic subjects the heart itself is not primarily at fault and that the majority of recruits who have heart symptoms do not suffer from heart disease but from physical and nervous exhaustion.

There is also a mental factor in many of these cases which must be taken into account. For instance, I recently examined a recruit twenty-six years of age who came from a Local Board with a diagnosis of tachycardia and with a written diagnosis of "endocarditis with hypertrophy." He had never had any infectious disease. Until three years ago he worked out of doors as a contractor. He then changed his occupation to a sedentary one and began to gain in weight, being 35 pounds overweight when I examined him. A year later he began to be nervous and was troubled with palpitation. He was frequently awakened in the night with precordial pain and would get out of bed and walk the floor a couple of hours. His thyroid was not palpable but he said my examination of his neck caused pain. Before exercise his pulse was 120. There were no murmurs and no evidence of hypertrophy. After hopping 100 times which seemed to give him

a good deal of general distress, his respirations were rapid, his pulse 150 and a slight apical systolic murmur was heard. The murmur soon disappeared but his respiration remained about 120 as long as he was in the examination room. He had been married a year and his wife expected a baby in a couple of weeks. He admitted his financial affairs were not in good condition and that he did not wish to enter the army. I told him I thought the exercise and out of door life would reduce his weight, strengthen his nerve centers and make a new man of him, with which he agreed.

NEURO-CIRCULATORY ASTHENIA.

Thomas Lewis has recently proposed the name "Neuro-Circulatory Asthenia" (N.C.A.) for a group of cases "which present a well defined symptom complex in which certain nervous and circulatory symptoms are associated with an increased susceptibility to fatigue"³ which have heretofore been included under the term "Irritable Heart of Soldiers" or "Disordered Action of the Heart." These recruits show symptoms which it is not possible to ascribe to any one definite diseased condition. After exercise the usual symptoms of heart trouble are manifest such as breathlessness, fatigue, chest pain, palpitation, giddiness, headache, etc. There is frequently a more or less pronounced tremor of the hands which is coarser than that usually seen in exophthalmic goiter. The hands are also often cold and clammy and markedly cyanotic. The subject may be ruddy and vigorous or of poor build, asthenic and debilitated with a tendency to profuse perspiration. The apex beat may be diffuse or forcible and heaving, but without dilatation or hypertrophy. Pulsation of the epigastrium and the peripheral arteries is common. The heart rate is almost always accelerated, being from 90 to 100 beats or more per minute in the upright position. There is often a striking inequality in the pulse rate brought on by a change from a horizontal to an upright position and the rate may be markedly accelerated after slight exercise. After hopping 100 times the pulse does not return to its normal rate at the end of two minutes.

Lewis sums up his description of these cases by saying: "It is strongly recommended, above all, not to transport soldiers suffering from this disorder overseas for active service, as it is known that their period of service on full duty is short."⁴

TACHYCARDIA.

Closely allied to the weak hearts or neurotics or neurasthenics and the hearts of Neuro-Circulatory Asthenia are some of the cases of simple tachycardia and I frequently find them difficult to classify. In some instances they come from the Local Board with a diagnosis of tachycardia and we find the pulse rate normal at the Advisory Board. In other cases the heart is rapid before examination and does not slow down after the lapse of several moments in the recumbent posture. In some cases the tachycardia is the only symptom present and is evidently due to excitement or emotion. In others there may be shortness of breath, after hopping but the respiratory rate is often proportionately less than the pulse rate.

Some have used alcohol and tobacco to excess. Unless the pulse rate is persistently over one hundred and the individual has a definite history of trouble extending over a considerable period and unless definite signs are present on physical examination and providing hyperthyroidism, tuberculosis and other acute infections can be excluded, these cases of simple tachycardia should be accepted for military service and we have passed a good many of them on to the cantonments without their being returned.

HYPERTHYROIDISM.

Without question, however, some of these rapid hearts are due to hyperthyroidism or early tuberculosis. There may be no apparent enlargement of the thyroid gland and but few if any prominent nervous symptoms. Rapid heart and tremor may be the only signs present. It is often however possible to detect a tendency to vasomotor disturbances, a warm moist skin, warm extremities, active capillary circulation and rapid action of the heart, the rate of which is easily increased by any mental excitement. The knee jerks are increased and slight muscular tremors may be appreciable. The individual is easily exhausted both mentally and physically and incapable of sustained effort.

"Graves Disease is above all things a condition of heightened excitability of the vegetative nerves accompanied by disordered metabolism and abnormal action of all organs innervated by them, of the heart, thyroid and adrenals amongst others; but there is no sufficient justification for classifying all cases in terms of thyroid enlargement. The presence of a goitre exhibiting vascular anomalies in association with other evidences of sympathetic irritation and metabolic disturbances leaves no room

for doubt as to the diagnosis, nor does the absence of a goitre where sympathetic and metabolic disturbances are marked. But the presence of a goitre with tachycardia alone, or with tremor alone, is not sufficient ground for the diagnosis of Graves' Disease in the absence of other signs of sympathetic or metabolic disorder."⁵

Cases of simple enlargement of the thyroid with no symptoms of hyperthyroidism should not be rejected; but as we know that sooner or later some of these cases show symptoms, if even a slight degree of tachycardia or tremor are present the individual should be rejected for general military service however small the thyroid may be. If, however, only a rapid heart is present without the characteristic fine tremor of Graves' Disease in an individual who is in good general condition and whose thyroid is not palpable and Neuro-Circulatory Asthenia, tuberculosis and other acute toxic conditions can be excluded, he can safely be accepted.

ARRHYTHMIA.

There was formerly considerable confusion as to the significance of cardiac irregularities, but we now know that certain irregularities are indicative of serious disease while others are of little or no importance. One of the latter is sinus or respiratory irregularity which has a definite relation to respiration, the pulse rate increasing during inspiration and decreasing during expiration. This form of arrhythmia is of no importance and should never be a cause of rejection for military service.

Extra systoles or premature contractions are one of the most frequent causes of irregularity and are often a cause of worry to the individual and sometimes of perplexity to the examiner. Extra systoles and partial heart block account for the vast majority of cases of intermittent pulse or dropped beats and it is important to differentiate between them as the former are rarely if ever in themselves indicative of an impaired heart, while the latter always mean a diseased myocardium. The diagnosis can usually be made with the stethoscope. In heart block no sounds are heard during the intermission because the ventricle does not contract, but it is exceedingly rare for an extra systole which is not palpable at the wrist to be so feeble as to produce no heart sounds at all. A heart which shows no extra systoles when at rest, but develops them on exertion is probably the seat of myocardial impairment. But an extra systole in a young man unassociated with any other signs of cardiac disease and which disappears

after exercise is not a contraindication to military service.

Practically the only cardiac irregularities which are accompanied by damage to the functional efficiency of the heart are those due to auricular fibrillation and heart block (McKenzie.) There should be no difficulty in differentiating between extra systole and auricular fibrillation in the latter of which the heart is absolutely irregular as to the time and strength of its beats. If present at the recruit's age auricular fibrillation is usually associated with mitral stenosis and a history of rheumatism. Later in life it may accompany myocardial disease. It always produces a marked effect upon the heart's efficiency and may be recognized by the presence of complete irregularity of the pulse and a poor response to the exercise test. The pulse is usually rapid, but if many of the contractions of the ventricle do not reach the wrist the pulse rate may be less than normal. When a heart is irregular and the beat 120 or more per minute it is generally due to auricular fibrillation. Extra systoles disappear when the heart rate reaches 120.

MITRAL STENOSIS.

Although this paper should be confined to cardiac conditions which do not disqualify for army service, I must refer to a condition which is a disqualification in all cases but the correct diagnosis of which is at times a quite difficult matter. I refer to mitral stenosis. A typical case is easily recognized by (1) a short presystolic thrill ending in a sharp, abrupt, loud shock; (2) a presystolic murmur often unusually sharp and abrupt, ending in a short, snappy, sharply accentuated first sound and heard over a quite circumscribed area to the right of the apex beat; (3) accentuation and reduplication of the second pulmonic and often a reduplicated second sound at the apex; (4) a heart normal in size, or apparently smaller than normal, or perhaps more frequently somewhat enlarged to the right, less frequently to the left especially if regurgitation is present. To one examiner there may seem to be a prolongation of the first sound, to another simply a reduplication of the first sound, while to a third the first sound may be so altered as to constitute a systolic murmur. The murmur may not appear until several years after the thrill (McKenzie) and even then may be absent for days at a time. Babcock states that the presystolic murmur of mitral stenosis is one of the two truthful murmurs, the other

being that of aortic insufficiency, but the murmur is not always present to give its testimony when we would like to have it. I have seen Osler hunt four days in succession for a presystolic murmur he wished to demonstrate before finding it. It may be audible only in the prone position or at the end of forced expiration.

In an early case of mitral stenosis which is examined on a day when no thrill or murmur are present, with no enlargement in the transverse diameter of the heart on palpation or percussion, where a possible history of attacks of tachycardia and palpitation, shortness of breath and inability to perform hard work is overlooked, and where the accentuation of the second pulmonic sound, forcible action of the heart and shortness of breath are ascribed to nervousness, it is not surprising that the case is passed on to a cantonment. On the other hand, I frequently find a sharp, apical slap, an accentuated mitral first sound and what seems to be a faint, scarcely perceptible presystolic murmur in a recruit who is apparently more or less nervous and excited in the crowded rooms of the Advisory Board. But when the examination is made some hours later after a period of rest and quiet the heart will appear to be quite normal. Many of these doubtful cases respond in a typical way to the exercise test.

A month ago a recruit came from a Local Board with a diagnosis of tachycardia. I found nothing wrong with his heart and was about to pass him for active military service when he showed me his discharge from a National Cantonment with a diagnosis of "mitral stenosis, severe—mitral regurgitation, moderate." While on a visit to the cantonment a few days later I took the case up with the cardio-vascular expert who said he remembered it well and that the diagnosis had been concurred in by two of his colleagues. The next day I re-examined the man along with two other members of the Medical Advisory Board, with absolutely negative results. His blood pressure before exercise was systolic 104, diastolic 66. After running up one flight of stairs it was 132-65, two minutes later 102-66. Before hopping 100 times his pulse rate was 64, one minute later it was the same. There were no accentuated second sounds, no murmurs, no signs of hypertrophy, an occasional extra systole before exercise, none after.

I have been told that at several of the National Cantonments cases have occurred in which a diagnosis of mitral stenosis has been

made wherein death has occurred from other causes and at autopsy no pathological changes in the heart have been found. This would seem to warrant the conclusion drawn by one of my friends "that other changes can cause a cardiac symptomatology and that the short rolling apical first sound may be just as functional as the systolic blows," which we all know are considered functional in so many cases.

PRESYSTOLIC THRILL.

Morris and Friedlander⁶ have called attention to the fact that a functional presystolic thrill followed by a more or less marked apical systolic shock and associated with reduplication of the first sound at the apex may occur in many perfectly normal hearts while the subject is in the erect position, especially if the heart is beating rapidly. In the recumbent position, on the other hand, particularly if the heart has slowed down, these signs almost if not entirely disappear, but the second pulmonic sound not infrequently becomes accentuated and reduplicated. *No presystolic murmurs*, however, are heard in these cases, there is no enlargement of the heart, the response to exercise is normal and no symptoms are complained of on exertion. These hearts are therefore considered to be normal. In view of these findings and of the fact that the presystolic murmur of mitral stenosis is not always present and that the second pulmonic sound is accentuated in "about half of the cases between the ages of twenty and twenty-nine,"⁷ and may also be reduplicated, and wishing to know what course to follow in doubtful cases, I wrote the Surgeon-General's Office for instructions and received the following from Colonel Frank Billings: "In my opinion the diagnosis should not be made unless there is found on repeated examination a rather typical presystolic murmur and thrill with the characteristic accentuation of the pulmonic second sound. The individual who has mitral stenosis will never respond well to the exercise test.

"Mitral stenosis is simulated by the physical signs of functional disturbance of the heart due to a general unbalanced nervous apparatus often of congenital origin and to toxemia as in thyroid disease.

"To my mind it is better not to disqualify the registrant unless you are quite sure, but let the final decision be made by the medical board of the camp. If the medical board is in touch with the plans of the War Department, doubtful heart cases will be assigned to duty in Development Battalions of the camps for special training and observation."

CONCLUSIONS.

Cardiac conditions to which little or no significance should be attached are:

1. Extra systoles.
2. Sinus irregularities even when quite marked.
3. Irregularities of the pulse at the recruits age when not above 80 or 85 and when myocardial disease and heart block are excluded.
4. Systolic murmurs at apex or base if the heart is not enlarged and the response to exercise is normal.
5. Acceleration of the heart's action if hyperthyroidism, tuberculosis and other acute infections are excluded, if there is no enlargement of the heart and if the response to exercise is normal.
6. Presystolic thrills, accentuated second sounds or reduplication of first or second sounds at apex or base, unless a distinct presystolic murmur is present or the heart is enlarged or the response to exercise is abnormal.

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Dependability of Tablets.—There is no doubt about the convenience of tablets, but the accuracy of the dosage content is not always to be depended on. In 1914, Kebler reported the results of a far-reaching investigation of tablet compounding in which he pointed out that tablets on the market were not as uniform or accurate as was generally believed. During the past year, the Connecticut Agricultural Experiment Station undertook the examination of tablets—proprietary and nonproprietary—taken from the stock of dispensing physicians.

The variations found in weights of the tablets were strikingly similar to those reported by Kebler. Allowing a tolerance in composition of 10 per cent., one or more products of the following manufacturers were found deficient: Buffington Pharmacal Company; Daggett and Miller Company; Drug Products Company; the Harvey Company; National Drug Company; B. F. Noyes Company; Progressive Chemical Company; Tailby-Nason Company, and John Wyeth & Brother (*Jour. A.M.A.*, July 27, 1918, p. 300).

TRANSACTIONS

OF THE

Clinical Society of the University of Michigan

Stated Meeting, March 6, 1918

The President, JAMES G. VAN ZWALUWENBURG, M.D., in the Chair
Reported by REUBEN PETERSON, M.D., Secretary

CONSIDERATION OF SOME DENTAL ANOMALIES.

CHALMERS J. LYONS, D.D.Sc.

(From the Dental Clinic, University Hospital, Ann Arbor, Michigan.)

More than a quarter of a century ago it was recognized that during the eruption of the teeth, the brain and the nervous system, the stomach and whole intestinal tract, the circulatory and respiratory systems, all show an increased, though varying liability to irritation.

Years ago that great master in Oral Surgery, Dr. James E. Garretson, taught that the process of the eruption of teeth caused many disorders through reflex disturbances in various directions.

For years unerupted teeth have been recognized as etiologic factors in the production of cysts of the jaws. In spite of all this knowledge little attention has been given to the subject of dental anomalies by writers upon surgical topics. The comparative scarcity of literature along this line has perhaps led to misapprehension regarding diagnosis and treatment and conservative methods, which would result in benefit to the patient have too often given place to uncalled for radical operations, obviously detrimental to the comfort and appearance of the patient.

It is to some of these abnormal conditions that the writer purposes to call your attention at this time.

The human family has, through centuries of use, established what we call a normal condition of the occlusion and arrangements of the dental organs. It has been so established because it is a condition that is most favorable for their function.

Now when a variation from the normal occurs which is a disadvantage or a disturbance of function, we naturally look back to discover, if possible, the cause of the deviation from normality. It has been contended, although not clinically proven, that there is a tendency to degeneration of the jaws of the human race and that the continual development of the nervous system is accomplished at the expense of the osseous system. Thus the more intellectual the human race becomes, through the process of evolution, just in that proportion will the osseous system become depleted.

The disciples of Darwin believe that as we ascend the scale in so-called civilization, we lose some of the factors that were necessary for the maintenance of life in the primitive man. As an illustration—the animal depends upon its physical strength for its food and its protection. The bony framework comparatively is very strong. The bones are large, long and the prominences upon their surfaces for the attachment of muscles are very marked, thus indicating that the muscles are large and strong. As we ascend the scale to man, we find that the bones are comparatively small in diameter, and shorter, showing that the muscles are not so large and strong.

Great changes take place in the jaws and teeth. They become smaller in size, the teeth change their shape, because man is now no longer required to procure his food with his teeth or to protect himself with his jaws. The temporal muscle, zygomatic arch and jaws decrease in size and are not so prominent. Talbot has stated that if we compare the jaws of the orang and chimpanzee with those of the

Esquimaux, we observe a wonderful difference in regard to size, shape and character of the jaws and teeth. If we now compare the jaws of the Esquimaux with those of our working classes, and these latter with the jaws of young people of the well to do classes who are not required to work physically, we shall observe almost as great a change as between the jaws of the chimpanzee and Esquimaux.

Much of our food today is prepared in such a manner that mastication is almost unnecessary and arrest of development of the jaws must follow as a result. While the etiology of all dental anomalies cannot be accounted for by arrested development of the osseous structure of the jaws, many of them originate in this manner. Others are caused by some structural changes in the early development of the teeth and jaws.

We will first consider the impacted lower third molar. This condition is in the large percentage of cases caused by either lack of normal development, or by arrested development of the inferior maxillae. The second molar immediately in front and the coronoid process behind bound the space accorded to the third molar. Each tooth which has no deciduous predecessor is developed beneath the base of the coronoid process, that is, the first, second and third permanent molars. The only manner in which these teeth are able to take their places in the normal arrangement of the teeth in the jaw is by the physiologic absorption of the anterior surface of the coronoid process. While this process of absorption is going on, on the anterior surface, through the laws of compensation, nature has provided for a deposition of bone on the posterior surface. Through these two processes, absorption and deposition of bone, respectively, all of the molar teeth are able to erupt into their proper positions.

However, when either of these physiologic processes in the process of development of the mandible is arrested, the interval between the anterior surface of the coronoid process and the last erupted tooth which is usually the second molar, will be insufficient for the normal arrangement of the presenting third molar. Under these conditions, the tooth in pressing forward, takes a direction in which the least resistance is offered to its progress and a condition becomes manifest which we term impaction.

Another condition which must be recognized in accounting for the malposition caused by

the impaction, is that the tooth has been directed from its course at a comparatively early period of development, irrespective of resistance offered at the time of eruption. This condition may be accounted for by a change in the character of the cancellous bone immediately adjacent to the developing tooth. If, through some inflammatory process peculiar to the individual or by the same process set up through some pathologic disturbance, or trauma, a secondary deposit of dense bone is laid down, around the developing tooth, a change in direction of eruption of the tooth may take place or there may be a prevention of its eruption entirely. This retarded condition is also due to the fact that at the points where all of the other teeth are located, soft spongy bone or alveolar process is found and absorption of tissue takes place more readily at these points than at the point of eruption of the third molars which is made up of dense cortical or true bone. Frequently it will erupt until it comes in contact with the second molar and then stop on account of insufficient space in which case only a small part of the tooth will be presented. The upper third molar presents an entirely different condition on account of the difference in the character of the bones in the upper and lower jaws. When, for any reason, there is a retarded development of the upper jaw which makes it shorter in its anterior posterior diameter, so that there is not sufficient room for the normal eruption of the third molar, the crown of that tooth will point toward the cheek, taking the direction of least resistance in its course. It slides out to the side, being guided by the second molar, which is already in place. If there were plenty of room both upper and lower third molars would erupt without pain which is rarely ever the case.

The cuspid teeth are the next in the series most likely to be impacted. The etiology of this condition is the same as that of the impacted molars—viz. insufficient space for the normal presentation of the tooth in the process of eruption. The cuspid teeth make their appearance long after the eruption of the lateral incisor and sometime after the eruption of the first bicuspid. In case of retarded development of the jaws, there may not be sufficient room between the lateral incisor and first bicuspid tooth for normal eruption of the cuspid tooth and a resultant impaction occurs.

On account of the tendency of an erupting tooth to follow the course of least resistance,

the tooth will slide out to the buccal or into the lingual surfaces of the jaws. It is also true that at an early period of development of these teeth, that a secondary deposit of bone in the jaws; due to an inflammatory process, may influence a change of direction in the developing tooth so as to change its position entirely when it erupts.

While the third molar and cuspid teeth are predisposed to impaction more frequently than any others, yet any tooth in either jaw may become impacted if the environments are not such that normal eruption can be made possible.

The next anomaly which we will consider is the unerupted or aberrant tooth. This condition may be present in any part of the jaws and any tooth may be the offending member.

There is always a reason for the tooth being unable to erupt normally. The developing tooth meets some obstruction in its normal course such as a supernumerary tooth or a normal tooth which has previously erupted and already occupies the space belonging to the erupting tooth. Again, a previous inflammatory condition in the cancellous bone may have set up secondary deposits of dense bone which will prove an obstruction to the developing tooth and deflect it out of normal alignment. This subject would not be complete without a few words relative to the supernumerary tooth.

"Any tooth in excess of the normal number of thirty-two, although clearly cases of reversion of type, in many instances, are included in the category of supernumerary teeth."¹

Albrecht and others maintain that the incisor teeth were originally six in number and thus a supernumerary lateral incisor would be clearly a reversion of type. Their appearance in any situation is evidence that the normal number of tooth buds has been exceeded.

Guilford divides these teeth into two types, those having typical anatomic forms and those having the conical form.

Supernumerary incisors in either jaw having typical forms are not uncommon. In the upper jaw supernumerary centrals and laterals both may appear, the latter more frequently. Supernumerary teeth may occupy any position relative to the dental arch but are more frequently seen on its lingual surface. In addition to molars and incisors supernumerary bicuspid are occasionally found, while supernumerary cuspids are very rare.

1. Burchard.

PATHOLOGIC CONDITIONS PRODUCED.

We will now consider some of the pathologic conditions which are induced by these dental anomalies. We will take up first the impacted lower third molar.

Perhaps the most common disturbance we encounter is local infections of the soft tissues surrounding the tooth. This condition is usually present in the partially erupted tooth when the gum tissue which should occupy the space between the anterior surface of the coronoid process and the third molar has been forced out over the distoocclusal surface of the tooth and becomes contused in mastication. Bacteria laden saliva and food particles are forced into the interstice between the tooth and swollen tissue and infection takes place. Inflammation is set up and maintained, which is not limited to the injured parts, but more commonly extends to the adjacent structures involving the soft textures about the ascending ramus and frequently involving the paratonsillar region.

Deglutition becomes painful and trismus is set up. Many times the patient is unable to open the jaw more than two or three millimeters. After a time suppuration takes place and the movements of the jaws become less constrained.

In these acute conditions, it has been the writer's experience that immediate procedure is contraindicated. In his opinion the treatment of choice is to apply counter irritants, the application of cold compresses or ice to the face, and have all of the body eliminating processes active.

After the inflammation has subsided and the jaws have become less constrained, conditions should be restored to normal by surgical procedure to obviate repeated attacks. This condition will be rarely found around other impacted teeth than the lower third molar.

A pathologic condition which may occur as a result of any impaction is pressure resorption. When the crown of one of these teeth is lodged or impacted against the root of the adjacent tooth, the hard enamel surface of the impacted tooth will cause a resorption of the tissues of lesser resistance of the other one. This may go on to such an extent that the nerve pulp of the adjacent tooth will be encroached upon.

A very serious condition may arise from an impacted lower third molar by pressure being exerted upon the inferior dental nerve. The position of these teeth in the jaws predisposes

to impingement upon the inferior dental canal. In such cases a reflected pain may be set up which will be expressed in any part of the head which has its sensory nerve supply from the fifth or trigiminal nerve.

Neuralgia may have its etiology in such conditions. The late Dr. Henry S. Upson, former professor of neurology in the Western Reserve University, ascribed many of the nervous disorders which "mankind is heir to" to impacted teeth. He states that "certain types of nervous disturbances caused by dental impactions has almost the clearness of a laboratory experiment, as in it the severest symptoms are set up by the simplest irritant. Pain may be from the beginning to the end quite lacking." It is the constant though mild irritation, perhaps not sufficient to produce pain, that sets up some of these nervous disturbances which may of themselves take on a violent form.

Alopecia areata, or baldness occurring in sharply defined patches, leaving the scalp smooth and white, is a condition due to a nervous disturbance. The impacted tooth must be considered an etiologic factor in this affection.

During the last few years, we have had several cases of this nature in the University Hospital that showed marked improvement after the removal of impacted teeth.

Another abnormal condition is quite frequently found associated with the presence of impacted lower third molars is a tendency for these teeth in their effort to erupt to force all of the lower teeth forward. Orthodontists have found it almost impossible to retain normal occlusion following orthodontic treatment with these teeth present in the jaws. Many fine results have been ruined by the presence and activity of impacted teeth.

What are the pathologic possibilities of the unerupted tooth? It is a remarkable fact, and one which has not been fully explained, that unerupted teeth having lain dormant for years in the jaws suddenly become the seat of purulent inflammation with sometimes serious symptoms. Such cases are by no means rare. Some writers are of the opinion that under certain conditions these teeth may act as foreign bodies and may even fall a prey to resorption. Under these conditions where an irritation has been set up and purulent inflammation has become seated, a bone abscess may form around the region of the unerupted tooth. This abscess may develop until a large portion of the jaw becomes involved.

Another condition which is frequently seen in mouths of men and women under thirty years, is the cystic growths connected with teeth whose eruption is retarded. While in the light of our present knowledge the explanation for the formation of these cysts is largely theoretical; Tomes has given the writer the most plausible theory. He states that when the development of the enamel of the tooth is completed, its outer surface becomes perfectly detached from the investing soft tissue and a small quantity of transparent fluid not uncommonly collects in the interval so formed. This fluid ordinarily is discharged when the tooth is erupted, but when from some cause the eruption of the tooth is prevented, it increases in quantity and gradually distends the surrounding tissues, causing a resorption and disintegration of the osseous structures. These cysts may go on developing until a large portion of the jaw is involved.

Again, the unerupted tooth may, by coming in contact with the roots of the normal erupted teeth, cause pressure resorption and thus produce a permanent injury to them. When these teeth lie in close proximity to a nerve trunk, they may cause undue pressure and set up the same obscure nervous disturbances which have been attributed to impacted teeth.

The last of the dental anomalies which we are considering in this paper is the supernumerary teeth. One of the most common resultant consequences of the supernumerary teeth is the obstruction they present to the normal eruption of the permanent teeth. They may retard or entirely prevent the eruption or they may erupt first and force the normal tooth to erupt out of alignment. Warnekros has written quite extensively on these teeth as an etiologic factor in the causation of cleft palate. It is a well recognized fact that in cleft palate there is not a lack of palatine tissue, but a failure of union of the tissue. Warnekros believes that the failure of union is brought about by excessive number of teeth. He says

"As the normal number of teeth during their development requires a comparatively large space, it is explicable that in very many instances, a supernumerary tooth, with the limited conditions of space in the intermaxillary bone which is not yet completely ossified may itself cause a cleft formation in the intermaxillary bone."

In support of this contention which he says he no longer brings forward as an hypothesis, but declares to be a fact, he cites an extensive series of cases as proofs in which he emphatically states that a supernumerary tooth can al-

ways be proved to have been the cause of the cleft.

While we are not yet ready to accept the deductions of Warnekros in their entirety, there seems to be some relation between these anomalies and cleft palate. We frequently find that supernumerary teeth are present in these cases. The writer, however, is not able to follow the reasoning of Warnekros in clefts of the lip alone or in clefts that do not involve the maxillary processes. It has always been a question with the writer as to whether the supernumerary tooth is the etiologic factor in cleft palate, or whether the changes which take place in embryonic life which result in cleft palate do not in some manner affect the development of the normal number of teeth.

DISCUSSION.

DR. CYRENUS G. DARLING: After listening to this very able paper one wonders what can be done to avert this terrible disaster which is coming to the human race. Every once in a while we learn of a new calamity, and still the race goes on. The question arises whether it is worth while to attempt to develop the human jaw back to the chimpanzee shape with all the teeth and strength, or, if this is advisable, whether it can be done. We evidently are departing from this line of development because I can recall very clearly in my early childhood that there was a silver quarter with a hole in it to put a string through, and this coin was kept in the family to tie around the neck of the children while the family was cutting teeth. Another thing in those days was the method of feeding. When the child began to take food, and that was as soon as he could sit up, he was given a crust of bread, or when the parson called and there were many chicken bones, these were saved and given to the babies to use in his mouth as he saw fit, and these agencies no doubt were very largely responsible for the development of the teeth and jaw. We all know in our work on cleft palate and repair of the jaw how very little pressure it takes to mould the shape of the jaw. There is another thought which comes in here and that is the higher the civilization the more of these cases of lack of development will be found. In this lack of development there is pressure upon the nerves which may cause most any nervous disorder and serious disease. When we advance to a stage of civilization we can say that people who have advanced to such a stage where they spell culture with K are especially developed along these lines, resulting in many things with which we are familiar.

DR. JAMES G. VANZALUWENBURG: Naturally, I am more or less interested in these conditions because I am often a factor in their discovery. I have almost reached the point where I am not surprised to find a tooth almost anywhere. They are the most ubiquitous things we have about the face.

"LYMPHATIC DISEASE IN CHILDREN"

HAROLD DEB. BARSS, M. D.

(From the Surgical Clinic, University Hospital, Ann Arbor, Michigan.)

In examining the records of the Surgical Clinic a short time ago, I learned that recently seven children had been operated upon for suspected appendicitis, and at exploration certain unexpected and strikingly similar features were disclosed. A review of the case histories of these seven children brought to light these common findings.

All the symptoms occurred in children under puberty.

All presented a syndrome suggestive of recurring attacks of appendicitis. Thus—In each, abdominal pain was the most prominent feature, coming in attacks lasting from a few hours to three days. Each complained of nausea. Constipation was the rule. Unlike the usual picture of appendicitis, no case had fever or a leucocytosis. The urine and blood tests were in every case normal. The Wassermann examination of the blood was negative in all cases. A gastrointestinal X-ray in five of the cases gave a picture of ileal hypomotility very typical of chronic appendicitis. And in no case could any pathology be discovered for the appendiceal trouble.

Yet at operation in each and every case the appendix was found free, without any adhesions, and somewhat hypertrophied. It did not look very pathologic. The unusual feature was the presence of enormously enlarged lymph glands in the mesentery and along the spine, retroperitoneal. Those glands draining from the appendix seemed to be especially affected. In each case the appendix was removed, and some of the glands. Again there was unanimity in the reports from the pathologist, for in all he wrote, "Lymphoid Hyperplasia in Appendix and Lymph Gland." Twice he suggested the possibility of a lymphatic constitution.

In trying to correlate this syndrome with other known diseases, that of status lymphaticus seemed most nearly to approach these seven cases. This disease is spoken of as, "A rare condition met with chiefly in children in which the lymph glands and lymphoid tissues throughout the body are in a state of hyperplasia." The lymphatic structures of the alimentary tract are most commonly affected. We believe that in some way our cases are instances of a degree of lymphatic constitution which fortun-

ately are not of an aggravated type and have not resulted in the so-called, "thymic death."

We cannot say positively that the appendix is at fault; but we do know that after removal of the appendix, all the symptoms from which the children had been suffering for two or three years were completely relieved. In two cases a second X-ray after operation showed that the intestinal motility had become normal. What effect appendectomy will have on the general glandular hyperplasia we cannot as yet predict. In favorable cases we would expect atrophic changes in the thymus and lymphoid structures to take place as the child grows older, and the patient may then outgrow all evidence of the disease.

This then seems the rational procedure;—appendectomy to relieve the immediate active manifestations of the disease. This to be followed by ultimate disappearance of the disease through natural retrograde changes.

DISCUSSION.

DR. CYRENUS G. DARLING: This is a very interesting study. How or why were these lymphatics enlarged? And why did the pathologist say that the pathologic condition was struma? When the tonsil becomes infected we think nothing of it if the neighboring lymphatic nodes become enlarged; in fact, we rather expect them to be enlarged and we say that if we remove the tonsils that the nodes will probably return to a normal condition. In the child it is not impossible to suppose that some of this same type of infection may get by the tonsil and be carried along the intestinal tract, evading the destruction which might possibly come to it in all this journey, and safely reach the appendix, there to enter the lymphoid tissue of the appendix and be distributed to the mesenteric lymphatic system from that point. In some of these cases we find quite a wide distribution in the mesentery, wider perhaps than would come from the direct invasion from the lymphoid tissue in the appendix. From the appendix we are told that the lymphatic nodes are found in the mesoappendix and that we might expect the infection from the lymphoid tissue to be carried to these lymphatics and thence to still further lymphatic distribution in the mesentery of the small intestine. It has been our observation in nearly all cases of appendicitis to find that there are two or three enlarged lymphatic nodes over the ileocecal junction, and in some of these cases we are able to trace this enlargement of the lymphatics toward the median line, that is, over into the mesentery and upward toward the median line. Yet, in some of these cases we find a wider distribution than would seem to follow this line unless there was some blocking of the lymphatic tract, and by the damming back of the lymph channels, other lymphatic nodes became involved. It is perhaps more logical to think that there has been an invasion of Peyer's patches or the solitary glands in the intestine from the same infection that invaded the appendix and its lymphoid tissue, and

that this lymphoid tissue had been the point of infection, and that the infection had been carried to the lymphatic nodes. There is one point in this that we don't clearly understand, which may have some bearing upon this point, that is the effect of irritation of the appendix upon the ileocecal valve, whether this does at times produce a spasm of this valve with retention at the lower end of the ilium the same as retained material in the appendix may cause infection of lymphoid tissue there. May it not by spasm of the valve and retention in the lower end of the ilium, cause infection of the lymphoid tissue in this area; or, on the other hand, if there is a patent ileocecal valve which may allow the material to lie still in contact with the lymphoid tissue, may not infection take place in that way? We find that nearly all of these cases occur with constipation, that the material does lie in contact with the lymphoid tissue of the appendix or the lower portion of the ilium long enough to produce irritation and the absorption of some material which causes increase in the size of these glands. If the lymphoid tissue of the appendix should be the point of absorption, we are doing the right thing to remove the appendix and prevent the absorption. If the ileocecal valve is controlled in any way by inflammation or irritation of the appendix we do the right thing when we remove the appendix. At least, this is a question where we are able to offer some points in favor of this treatment by the results obtained. And I think that we will do well to proceed in all of these cases in this way by the removal of the appendix.

There may be marked inflammations in this locality, and I just recall one which goes still further in this thought of inflammation of Peyer's patches. It was a case of a child having hemorrhage following constipation with tenderness in the region of the appendix. This hemorrhage and tenderness led to the idea of intussusception. The hemorrhage was profuse and not deeming it proper to let this child go without an examination, I opened the abdomen. There was no intussusception, but about three inches up the ilium there were ecchymotic spots along the outer part of the bowel and these extended over on the one side toward the mesentery and the lymphatic nodes were enlarged. I did not proceed any further with this operation. This patient recovered, and after a week or ten days, the temperature went down. Now, you might say I am mixing up a case of typhoid infection, but I don't believe so. It began with constipation and had marked constipation except for the loss of blood. It didn't run the course of typhoid fever. I believe it was some other infection. I think that something might be done by more careful examination of these glands to determine the type of infection, whether it is an intoxication, or an invasion by some form of bacterium. I think that we should carry these studies still further along that line.

DR. JAMES G. VANZWLWENBURG: All of this makes very interesting speculation, of course, but up to this point we have to confess that most of it is speculation. It only throws into bold relief the dense ignorance under which we labor in regard to the physiology of this portion of the bowel. It is only another phase of the problem of the causes of ileal stasis. I say these are speculations. In

justification of that assertion I want to call your attention to the fact that Dr. Darling at one time argues that the hyperplasia is primary and the intestinal condition may be secondary, and the next moment he assumes that it may be the other way around.

I have been very much interested naturally, because I have been studying the motility of that end of the bowel rather intensively and have reached no conclusions. I want to suggest still another possibility which Dr. Darling omitted. One school of physiologists states that the motility of the bowel is largely controlled by chemical factors, by hormones. It seems to me altogether logical to suppose that the lymphatic hyperplasia may in some way modify the absorption of the food elements in the lumen

of the bowel, or of the specific hormone, and as a result food is retained there until the requisite amount of these substances is supplied. Experimental physiology teaches that when a bowel is full it is much more active than when it is empty, that is, that the contents of the bowel excite it to greater activity. Yet we find almost invariably that in ileal stasis there is a hypomotility, a reduction in the irritability, or the muscular tone is so much higher that there is a tendency for retrograde peristalsis. But these are purely speculations. We most urgently need greater light on this particular segment of the gastrointestinal tract than on any other physiologic subject with which I am familiar.

The importance of differentiating between those who are dangerously color-blind—that is, unable at all times to distinguish between red and green—and those who are only slightly color-blind, is brought out in a recent study conducted by the U. S. Public Health Service and reported in Public Health Bulletin No. 92.

The following classes are regarded as dangerously color-blind and therefore to be excluded from positions in which they would be required to read colored signal lights: (1) those who are able to see but three or less colors in the spectrum, (the normal person sees six or seven); (2) those who see more than three colors in the spectrum, but who have the red end so shortened as to prevent the recognition of a red light at a distance of two miles; and (3) those with a central scotoma (that is, a blind or partially blind area in the field of vision) for red and green.

It was concluded that this class of persons could be distinguished from those harmlessly color-blind by the use of the Edridge-Green color lantern, which was found preferable to colored yarns. The theories on which the color lantern is based are given in detail in the publication.

Another feature of the investigation was the study of the prevalence of color blindness. Excluding those able to distinguish five colors in the spectrum, it was found that color blindness occurs in about 8.6 per cent. of men and 2.2 per cent. of women. Color blindness of a degree dangerous in occupations requiring the recognition of colored signal lights was found to occur in about 3.1 of men and 0.7 per cent. of women. Among refractive conditions of the eye, color blindness occurs least frequently in eyes apparently without demonstrable refractive error; it occurs most frequently in eyes showing mixed astigmatism.

The examinations were made as a part of other studies of the effect of illumination on vision conducted as a part of an illumination survey of the Federal department buildings in Washington, D. C. One thousand persons were tested with the Edridge-Green lantern to determine both the value of the lantern and the effect, if any, of refractive conditions, lesions, and anomalies of the eye, and also of sex, upon different degrees of color perception.

A special study of the Jennings self-recording worsted test was also made, 50 persons being tested

with this and other tests. The results with the Jennings test were found to be too inaccurate for most work, although it was found to be superior to other tests in certain lines of work where great accuracy and the classification of color defects were not essential.

Several "Mixed" Vaccines not Admitted to N. R.—The Council on Pharmacy and Chemistry publishes a report announcing the rejection of a number of "mixed" vaccines. In publishing its report the Council explains its attitude toward this class of products: In view of the rapid development of bacterial therapy, the possibility for harm that attends the use of bacterial vaccines and the skepticism among experienced clinicians as to the value of vaccines representing a combination of organisms, the Council has felt that it should scrutinize the claims for such agents with exceptional care and admit to New and Nonofficial Remedies only those vaccine mixtures for which there is acceptable evidence to indicate that the particular mixture is rational. Experienced clinicians have generally come to the conclusion that mixed vaccines have no specific action and that any effect they may produce is due to a non-specific protein reaction. The preparations rejected in the accompanying reports are only a few of the many that are being sold by some biological houses. The report explains in detail the considerations which led to the rejection of the following preparations, all of which were considered because of inquiry received: 1. The Abbott Laboratories: M. Catarrhalis-Combined-Bacterin, B. Coli-Combined-Bacterin, Pertussis-Combined-Bacterin, Streptococcus-Rheumaticus-Combined-Bacterin and Streptococcus-Viridans-Combined-Bacterin. 2. Eli Lilly and Company: Catarrhal Vaccine Combined and Influenza Vaccine Combined. 3. H. K. Mulford Company: Influenza Serobacterin Mixed. 4. G. H. Sherman: Sherman's Mixed Vaccine No. 40 (*Jour. A. M. A.*, June 22, 1918, p. 1967).

Doan's Kidney Pills.—A testimonial for Doan's Kidney Pills by Mr. Ford appeared in the Kankakee Daily Republican, nearly three months after he was dead and buried. The advertisement containing the testimonial said: "Follow Kankakee people's example, use Doan's Kidney Pills" (*Jour. A. M. A.*, July 13, 1918, p. 140).

The Journal

OF THE

Michigan State Medical Society

ISSUED MONTHLY UNDER THE DIRECTION OF THE COUNCIL

A. L. Seeley, Chairman Mayville
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 R. S. Buckland Baraga

Editor and Business Manager
 FREDERICK C. WARNSHUIS, M.D., F.A.C.S.
 On Leave of Absence on Duty
 Medical Reserve Corps, U. S. A.
 GERRIT J. WARNSHUIS, M.D.
 Acting Representative Publication Committee.

All communications relative to exchanges, books for review, manuscripts, news, advertising, and subscription are to be addressed to Gerrit J. Warnshuis, M.D., Powers Theatre Building, Grand Rapids, Mich.

The Society does not hold itself responsible for opinions expressed in original papers, discussions, communications, or advertisements.

Subscription Price—\$3.50 per year, in advance.

Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 26, 1918.

September

Editorials

RELATION OF FATIGUE TO INDUSTRIAL EFFICIENCY.

The adaptation of scientific methods and the utilization of facts revealed by scientific investigation has played a very large part in the carrying out of our immense war program. An example of the length to which such scientific direction has been carried is the study of conditions affecting the working capacity of the industrial workman made by both British and American committees.

Viewed from a physiological standpoint many of their conclusions are interesting.

Different types of out-put curves have been found peculiar to the nature of the work and the number of working hours.

The first type, which most closely resembles the curve of work done by stimulating excised muscle at successive intervals, is found in the kind of work that requires close attention and muscle co-ordination. There is a gradual rise in output during the first two hours followed by an increasing fall until the lunch hour. The out-put is considerably higher after the lunch hour than before due to the recuperative effect of food and rest. The out-put curve is

lower at the end of the second period than just before the lunch hour indicating the cumulative fatigue of the entire work.

The curve produced in simple muscular work often differs from the first in that there is no early rise nor is the rise after lunch hour always present. The curve merely shows a progressive fatigue. Occasionally there is a short rise late in the day which is explained either by a sort of second wind or an emotional stress brought on by desire to finish a certain piece of work or some such incentive.

The third type of curve is found in such instances where the work is purely mechanical and excites little interest and there are frequent intervals of momentary rest. The output in these cases is represented by a nearly straight line and shows no fatigue.

The American committee has also shown that a constant daily out-put from one week to another with little variation is usually an indication that workers are holding it down to a fixed standard and are not working to the limit of fatigue.

Aside from the factors already mentioned other considerations enter into the working efficiency of a man. It has been found that where the working period was so prolonged as to leave too short an interval for complete recuperation the total out-put was reduced. In most cases, it may be concluded that a ten hour day represents the maximum.

Night work is not as productive as day work. Women tolerate night work worse than men. This is so evident that most countries have laws prohibiting women from night work. Women can not put in such long hours on their feet as men can. They endure cold better and heat less.

The familiar belief that whenever fatigue has been unusually great the rest period should be increased has been found to be verified when viewed from the stand point of daily out-put.

While these observations were made largely for economic purposes they have an important bearing on the question of what really constitutes fatigue.

From the scrutiny of these four types of out-put curves one is justified in concluding that the important element of general bodily fatigue is a nervous depression or relaxation.

The greater the strain on the nervous system in the kind of work performed the more variable does the out-put curve become. On the other hand, work characterized by monotony and frequent pauses shows no fatigue at

all in the out-put. That the fatigue of simple muscular activity is due largely to the condition of the nervous system is shown by the fact that by voluntary effort the out-put may be increased in the latter part of the working spell.

We may consider this nervous relaxation producing the signs of fatigue as due primarily to an exhaustion of the substance of the nerve cells themselves, the Nissl bodies if you wish, or if we incline toward the internal secretory theories of Crile and others, it may be held to be due to a using up of the hormones such as adrenalin and thyroid secretions which maintain the tonicity of the nervous system.

The more conservative view would hold that the functioning of the nerve cells is dependent on both and that whatever effect the internal secretions have on the nervous system is brought about by a ferment action on the substances of the nerve cell.

This is only a secondary consideration, however. The important conclusion deduced from this study of the daily out-put of industrial workers is that the problem of increasing the working capacity and endurance of a man must center upon the factors that conserve and develop the nervous system. Some of these factors such as sleep, work of a sustaining interest and purpose, good food, fresh air, abstinence from stimulants, and freedom from mental and emotional stress are sufficiently well known.

A most important essential, however, and one that is most frequently overlooked by the very men on whose nervous resources the greatest demands are made, is a powerful circulation of the blood that can only be attained by regular systematic exercise. Incidentally, it is our belief that exercises which tend to develop the thorax and shoulder girdle are most valuable. In a study we have recently made of the measurements of railroad train men it was found that a well developed thorax was invariably associated with a robust circulation. On the contrary, every man with a chest measurement of less than 33 inches was under nourished and had physical defects of one kind or another.

THE NEXT CALL.

We are trying to be calm about this—to hold ourselves to our every day tasks and obligations while our “boys” are making glorious history “over there.” The dash and strategy of the first great American offensive have

swept the enemy into a route. The blood of our country's best, some of them our own friends and neighbors, is flowing like water to save us from the arrogant aspirations of the paranoiac disciples of Nietzsche and Bernhardt while we sleep in peace and work unmolested.

A short time ago word came to us that one of Michigan's doctors had laid down his life on the field of battle. Another has received a cross of honor for gallant service. Verily, a beginning has been made; but we must be calm.

The ex-mayor of the greatest city in the land dies in the uniform of an army major. The son of a former President falls dead from a German bullet.

But do not let us be disturbed; we have our work to do.

Today we saw a mother marching to the railroad station with her son. There she said good-bye and went home alone. Soon she, too, will be scanning the casualty lists. Hundreds of other mother's sons marched with them; but we must be calm, this is only a matter of course, *C'est la guerre*.

The work at home must go on small glory though there be in it. There is no honor equal to that of fighting for the protection of one's country.

The question most important is how can we continue our activities of peace times, without reducing our maximum fighting efficiency? It is our duty to those men who are offering their all to see that there are no shirkers left behind.

The call will soon come for every able bodied doctor to enter the service. In fact, we are face to face with that issue now. What are you going to do about it? Temporize, you can not. Posterity will sit in judgment on your decision; dead men's faces will haunt you; the sneers and taunts of women, whose men have given themselves, will deride you if you fail of your duty.

Understand, this is not a question of how much more you will be sacrificing than the other man. When you have offered your body and your time you have offered everything that counts. The possessions, the influence, the social position you may have obtained can not be balanced against the life that another man has devoted to the cause.

There are only two conditions that are recognized as justifying a man for not applying for a commission. They are physical disability and industrial necessity. Woe unto

you, craven coward, if you are hiding behind a woman's skirts or clutching at a child's hand. Pity for you if you exult that you are above the age limit of the draft law. Those who are sending their brothers and sons and fathers out to die will feel no tender mercy toward you.

It is time that we know the sheep from the goats. Let the war committees issue suitable insignia to those who are honorably exempt from serving. Questionable cases may be referred to the State War Committee. In this way only can we discharge the obligation that is upon us as leaders in national sentiment and thought. Let the profession of Michigan take the lead in showing the world that our pride and honor hold a greater compulsion upon us than a federal law. We have maintained a heroic record so far. We must continue it.

Editorial Comments

The Journal can not be accused of exaggerating when we call attention to the fact that it contains original articles in this issue of more than passing interest. We refer particularly to the article by Connell, the author of the Connell suture. To the general surgeon nothing can be of more practical importance than a discussion of the "Acute Abdomen."

The Edwards bill should receive the hearty support and approval of the medical profession. This bill was presented in the House of Representatives for the purpose of improving the status of pharmacists in the U. S. army. It creates a pharmaceutical corps under the control of a pharmacist director with the rank of major. Regular pharmacists will rank as lieutenants.

We believe the efficiency of the medical corps will be greatly enhanced by giving pharmacists this recognition that is due them.

The following plan is imparted to our readers as a means of collecting delinquent accounts. The doctor who reports it states that it has served its purpose satisfactorily. On the reception room table he keeps a book which bears this inscription on its cover: "Unpaid Accounts—People in Arrears Who Owe Me." In it is placed the names of patients who have refused to pay their accounts. This means of publicly announcing delinquents is open to the patients who occupy his waiting room. The plan likewise has a wholesome effect on them for they pay promptly for services being undesirous of having their names posted in that book. When a

delinquent pays his account that is past due his name is erased from the book.

Another doctor reports that he is in the habit of advertising in his local newspaper as for sale the following accounts to the highest bidders. He advertises the name of the debtor and amount owing. He reports that patrons knowing his custom of thus advertising delinquents are prompt in settling their bills.

We impart these two methods without comment. We are not advised whether a person thus publicly announced as an evader of just obligation might not obtain legal redress for such publicity.

Our good friend, Dr. Fishbine, who edits "Tonics and Sedatives" has endeavored to come back at us for a comment appearing in these columns two months ago. His method of doing so in his "Tonic and Sedative" column was to revamp two so-called anecdotes that went the rounds when spears were the arms of soldiers. We are surprised that he was able to recall such ancient, antiquated quips that have long since ceased to stimulate one's "risor sardonicus." Evidently he has been contributing heavily to that Chicago "game." We feel complimented, however, on having been recognized, even though the thoughts of ancients were employed. Selah.

A month of somewhat intimate life with doctors who have given up practices, home comforts, severed home ties and friends and are working harder than they worked at home, submitting to regulations and orders and living in rough barracks evinces our profound respect and admiration. A nobler, better lot of men does not exist. When they come home, and they all have that secret desire, they will be inspired with a new zeal and to them there will be justly attributed a respect and honor that will enable them to resume where they left their work, better men, leaders in their communities.

When in the vicinity of any Base Hospital ascertain the nights when staff meetings are held. They usually occur on two or three evenings a week. A series of extremely interesting cases are presented each night followed by live discussions. The men responding to the draft call and coming from every station of social life produce a wonderful variety of clinical material. You may be assured that the staffs of army hospitals are alert and are profiting by their study of large groups of cases and recording their medical and surgical experiences.

When these men, who participate in these meetings, return home they are going to put new life in our County Society meetings.

Empirical and the principle or selective action as yet wholly unexplained nevertheless the administration of horse serum in 10 c.c. dosage exercises specific action in gonorrheal urethritis and orchitis.

New and old cases of gonorrhea have become free of all urethral discharge in two days to a week. The pain of an acute orchitis relieved in three hours after injection and the swelling disappearing in three to six days. We have seen this happen in not one case but in several. There are those who have observed these results in groups of 100 and 500 cases and know whereof they speak. Try it—10 c.c.s injected in the gluteal or subscapular region and repeated daily for five or six doses. Acute pain is relieved in three to five hours. Let us have the results in your cases.

We learn of some seven hundred herniotomies with but six cases of superficial infections. A month's operative record of 524 cases of major surgical procedures without a fatality. Similar results in other branches of our profession tell of the splendid medical and surgical care that is given to our soldiers. Never have these men experienced such scientific care and attention. Their folks at home need have no worry in regard to their soldier boys in that, yes or any other respect. Camp life is wholesome and moral.

What have you done in the way of patronizing our advertisers? We must have this co-operation from you. Please bear this in mind and make it your constant object to send them your orders. *The Journal* requires this help from you.

Liberty Bonds—of course you have purchased some of each issue, but how about this issue? It is true that you have taken some in payment of accounts. Nevertheless it becomes incumbent upon you to rake into a pile every penny you can lay your hand on and invest it in this new bond issue. Then when you have done that go to your bank and arrange for credit and purchase \$500 or \$1,000 more to be paid, by monthly payments. We urge that you buy to the limit and until it pinches you rather closely.

As pointed out in an editorial of *The Journal* of the A.M.A., August 17, the new Selective Service Law raising the draft age of the Army to 45 will come far short of supplying its medical needs even though this law will affect 75,000 doctors. Practically all of these will be given exemption under the same conditions as apply to men of other occupations. The fact that a doctor will probably get a commission has no bearing on the subject of dependents according to a ruling of the Provost Marshal General's office.

Only two methods remain by which the required number of medical officers can be raised. Either special legislation must be enacted or the medical profession must show itself capable of instituting a voluntary draft. We have sufficient confidence in the spirit of the members of the profession to believe that when the survey has been made by the State Societies and doctors are asked to apply for commission they will do so voluntarily and with only one thought, "How can I best help to win the war?"

We would like to see it done this way. We would like to show the world that doctors of this country do not have to be compelled to respond to its needs.

Correspondence

Boyne City, Mich., April 17, 1918.

F. C. Warnshuis, M.D.,
Editor of *The Journal*.

I refer to such organizations as "The Moose" and "The Eagles," who appoint some doctor to treat their members and the members' family for Two Dollars per member each year. Their argument of free medical and surgical services explains how these orders exist. The physician engaged in this practice cannot charge for his visits and this is the extent of the so-called free medical service theory. I understand that these doctors purchase the cheapest preparations on the market, which they dispense in large quantities to the members, and in that way get even, so to speak, because these people must pay for all office practice and medicines dispensed.

In cases that come under the compensation law I argue that the lodge doctor has agreed to render this service for a certain amount and when liability companies pay these bills the doctor is paid from two sources. Farther cases are on record where men draw more money when not working due to the insurance received plus compensation, as the doctor is anxious to please his brother in the lodge and does not insist on his reporting for work at the earliest possible moment, consequently the surgical expense is increased and liability companies treated in an unjust manner.

These physicians are artists in evading night calls to the members and when another doctor is kind enough to respond and requests his fee, which he seldom receives, he soon finds that the lodge doctor has taken charge of the case and a reflection is thrown on the ability of the man who had manifested a kindly spirit in the matter.

There is no such thing as free medical service, as you cannot get something for nothing, and therefore the members are imposed upon and the sick do not receive a square deal. Medical men engaged in this practice know the system is wrong and some are honest enough to admit this fact. I am glad to say the better class of doctors are not lowering the profession in this manner and yet many lodge physicians are active in medical societies, which is not fair to the ethical man of high professional ideals.

When doctors such as mentioned make visits for nothing we surely have come to the limit.

In conclusion this is, in my opinion, a vital question to the profession at large and I would like to have the expression of opinion from some of my professional brothers.

Yours truly,

HARRY E. SHAVER.

June 3, 1918.

'This is exceedingly interesting work. Our troops have done surprisingly well. We have withstood several heavy attacks and have attacked in turn, capturing a village. With few exceptions, my medical corps men have behaved themselves splendidly; two of them are to be cited in the regimental report—one for dressing his four wounded in a battered-in dugout under terrific shell fire; the other for directing the dressing of others, he himself being shot twice through the shoulder. The last named man walked into the dressing station over a mile away, after he had completed his job. On another occasion, the first man (there being nothing in his own line to do)) tore off his Red Cross, seized a rifle and shot three Germans. You may think this is bad form, but the Germans are now shooting up ambulances and bombing our field hospitals, so anything is fair. The other day I cared for a man wounded in the face so that both lips were badly swollen. Both hands were also bandaged. He called for a cigarette, which I lighted for him, and in spite of the difficulties in manipulating the thing, all swathed as he was, after the first long draw, he announced that was perfectly happy. They wounded one of our automatic out-posts so severely that he fell and dropped his gun. As they ran past toward our first line they jeered and made faces at him. Five minutes later, when the tide had turned and they were running back for dear life, our man recovered his gun and fired off all the c's he had. The enemy call us the Black Snakes, because we are always on the alert. Last night I went with Captain and Lieut. on an observation tour in front of our advanced posts. I found No Man's Land quite uncanny, overhung by a low, thin fog. There was no moon and only the bright stars looked clean. In returning we passed through a small ravine which lingers saliently in my memory. Here five nights before, in a shallow dugout in the right bank, several officers and myself had been caught in an enemy barrage which swept up and down the entire valley, crashing down great trees and knocking the rims off both sides. It was really most dreadful—most magnificent. We excavated two men with picks and shovels. Otherwise, the Lord was with us.

A few days ago the enemy sent over a lot of gas and, as a result, our dressing station hasn't been fit for work since. They landed a gas shell directly into our doorway. All of us are coughing more or less and one or two caught it in the eyes. We have evacuated a few of the enlisted men on account of gas, but most of them have been well drilled in the use of the mask. It's a great life.

W. W. MANTON, M.R.C.,

Captain 26th Infantry, 1st Division.

Battalion Surgeon A. E. F.

June 10, 1918.

P. S.—'They've held up our mail until we get further back, so I haven't heard from any of you for some time. This is a disappointment since I count on getting your letters every week. This gas business is rotten. Yesterday I went out into the woods and engineered a whole platoon, perfectly helpless, down into the ambulances. It was a cruel blow to our detachment. Blind, famished for air,

vomiting with abdominal pain, they groped along—and these symptoms, in most instances, will get worse as time goes on.

'Shells, shrapnel, machine guns, and grenades are far behind gas for wickedness. The nasty stuff is so insidious.

'Personally, I have never been so well. The Major exclaimed yesterday, 'My, but you have a slim waist.' And I am eating like a horse, too. Incidentally, we haven't changed clothes in six weeks; in fact, we rarely take them off, and then only to search and slaughter bugs. Some days (or rather nights) there is a great deal of work; other nights none. Everything is most irregular, depending both on our orders and on the enemy. We look for relief soon, although I am having a bully time.'

(Courtesy of Dr. Walter J. Wilson, Jr.)

France, June 19, 1918.

Dear Walter,

Your letter of May 15th at hand. It was full of news, just what I wanted, and several others have enjoyed it also. You have had your difficulties to contend with, but they seem to be overcome all right.

We here have been sawing wood and have been cheerful about it, too. Jim Matthews is associated with me in my particular hospital and is doing good work and happy in it. He remarked only yesterday that it was like a vacation here. We have our difficulties, too. Monday we had a formal inspection of our hospitals and were commended and congratulated on their condition and the work we had done. It is considered a harder job to run military hospitals in large hotels, but 36 has made a good name and outside fellows envy us. We have received British Tommies lately, as well as Poilus and our own American soldiers. We censor all their letters and every one of them have the best of impressions of American hospitals from ours. You probably get more literature to read than we do and yet I doubt if you know much more about the war. Our news is dope, still we are expecting great events soon.

We have had some beautiful weather, but a grate fire feels good tonight. With best wishes, I am,

Sincerely,

FRANK B. WALKER.

Major U. S. Base Hospital No. 36.

16th Regiment Engineers, A. E. F.,

June 10, 1918.

Editor War Bulletin,

Detroit, Mich., U. S. A.

Dear Sir:

About a month ago I saw in one of your war bulletins a request for contributions to keep the good work up. Ever since then I have been on the lookout for American money, because the war bulletin has surely been a good friend over here. At last I have found a torn and tattered American dollar bill, which I am sending herewith. I think it is the first of its genus that I have seen for over six months.

The Sixteenth is still up with the British, having been moved up here at the beginning of the Boche's efforts this spring. Major "Bill" Browne is still

regimental surgeon, and just now I am acting as surgeon for a battalion operating independently. All is well with us—the regiment has had a few casualties, but very few. Just now we are in the throes of an epidemic which was at first thought to be trench fever, but the pathologists now regard it as a type of influenza. They are promising that it will spread to America soon, if it is not already there. I hope it doesn't interfere with any of your summer vacations back there. It has been very mild here.

Give my best to all the old friends around the town.

Sincerely yours,

GLENN L. COAN,
Captain M. R. C.

Somewhere in France,
May 16, 1918.

My Dear Doctor:

* * * * Now just where to begin I don't know for I seem to live with my hat hung up on a temporary peg. At present I am in a Normandy city in the War Zone and quite among strangers as there are few Americans here except at the hospitals which are manned with U. S. doctors and nurses but care for British soldiers principally. These camps are located outside of the town, while those within are naturally French. Yes, I am in a bevy of activities and part of many myself. One simply talks on the surface these days when writing and so I must to you.

I wonder if I could ever become hardened to the pictures that confront me at every town. I think not; on the contrary, my heart literally bleeds times without number every day. And the scenes, the terrible pictures of the refugees are such that they indelibly print themselves on one's mind. Often as many as 1,100 of these destitute, war-starved people pass through my hands during a day. I look them over as they enter the barracks the American Red Cross has erected as both canteen and medical dispensary. In a lot of this number I may have to care for the ills of from 40 to 50 and of these quite a few will prove critical; in fact, some even die then and there—especially the very old and very young. No, one's heart could never be hardened because of the nature of the wound. You never saw such pictures and the human mind has to see to really comprehend what they are. I'll be ready for either the lecture platform, whenever the time comes and I may return, or a fit subject for a lunatic asylum. When Dr. Lucas, commander in chief of the Children's Bureau in Paris, comes to Detroit on his lecture tour, ask him to tell you of some of my experiences while on the English Channel with my "699" refugee children. I understand he is using some portion for his talks.

I saw quite a number of our Wayne County Medical Society doctors one day in Paris while attending a meeting. They were—am not sure of all their ranks—Major Babcock, *Capt. McGraw, Capt. Hirschman, Capt. Henry Carstens and very recently here I ran into Capt. Shawan. They are all well—well fed and fat.

Remember me most kindly to every one. I am deeper than ever for the cause.

Sincerely,
MARIA BELLE COOLIDGE,
(A. R. C.)

(Through the courtesy of Dr. H. W. Hewitt we have the following from Maj. H. N. Torrey.)

* * * * We are terribly busy. Have worked nearly day and night since the big drive started north of us, getting our cases directly from the first line—ours is the first hospital. Really an amazing and wonderful experience. We have just cleaned out one bunch, and expect another at any moment. Had 1,200 cases at one time, many bad ones—gas gangrene, compound femurs, foreign bodies everywhere—lungs, brain, etc.

I have been to the front twice in two months—once on the Somme the early part of April—having some exciting experiences there. Then a couple of weeks ago I went over the front in an auto with Spitzley and Hirschman, to see the sanitary organizations. We started at Verdun and went nearly to Switzerland. You can imagine what a great trip it was.

Yesterday I was up for an hour in a big bombing areoplane—really a wonderful experience. I was surprised not to get any sense of speed. It was like being in a boiler shop—and a very noisy one—suspended in the sky and not moving an inch. When we landed, I thought I would hit on my ear, but after some thrilling maneuvers I lit right side up, and I'm still here.

Best regards.

H. M. T.,
(Maj. H. M. Torrey, Base Hosp. No. 17, A. E. F.)

Deaths

Dr. Lorenzo Towne, Lansing, Michigan, died July 5, at the home of his son, Dr. Lawrence C. Towne, of Lansing. Dr. Towne was a graduate of the Detroit College of Medicine. He was 67 years of age.

Dr. Lyman Crotser, Petoskey, Michigan, age 59 years, died July 25, following a stroke of paralysis.

Dr. William S. Gass, Royal Oak, Michigan, died July 31. He is survived by a wife and mother.

Dr. Charles B. Leonard, Detroit, Michigan, age 38 years, died June 26, following an illness of six months. He was a graduate of the class of 1904 of the Detroit College of Medicine.

State News Notes

**FOR SALE—1 Porcelain Operating Table.
1 U. S. Army Folding Operating Table, new,
at 325 Evergreen Ave., c-o C. C. Wood, Owosso,
Michigan.**

The members of the Marquette-Alger Medical Society held a picnic at Presque Isle on June 29th. This was the first of three such social meetings the society had planned for the summer. As an example of the friendly get-together spirit, this society may be modeled after.

Word has been received that Lt. Col. Angus McLean, will return in October and also that Capt. C. D. Brooks, President Examining Board, M.R.C., since July, 1917, has been assigned to active duty, and will leave Detroit in the near future.

A banquet was given at Cadillac, July 13, by the Tri-County Medical Society in honor of Captains Ricker and Oden who have left for service in the Medical Reserve Corps. The society was addressed by Drs. Hume, Wardell and Babcock and the Rev. Jonathan Turner.

The city of Detroit has received permission from the Federal government to purchase the site for a new tuberculosis sanitarium and to draw up a contract for the proposed sanitarium. A \$1,000,000 institution is planned.

The Michigan Anti-Tuberculosis Association has got in touch with several hundred men who have been discharged from camp on account of tuberculosis. As a result they have succeeded in placing one hundred under supervision and care.

Lieutenant Jno. W. Sherrick, M.R.C., Ann Arbor, Michigan, has received the military cross of honor of the British government for bravery and devoted service under fire.

Members of the Genesee County Medical and Dental Societies were entertained by Dr. and Mrs. F. L. Tupper at Long Lake on the evening of July 25.

The corner-stone of the first reconstruction hospital to be built in America was laid June 15 in Boston. The hospital is a gift of the Elks of the United States and will cost \$250,000.

Members of the Bay City Medical Society held a monthly meeting at Winona Beach on the evening of July 19th.

Formal transfer of the Detroit College of Medicine and Surgery into the hands of the Detroit School Board took place July 25th.

It is hoped by those who were instrumental in bringing this step about that the college will be the beginning of a Detroit University.

Dr. Wm. R. Vis, formerly of Detroit, has taken up his new work as tuberculosis expert for the city of Grand Rapids.

Dr. Herbert L. Wright of Kenosha Wisconsin, has accepted the position of health officer for the city of Lansing.

An annual picnic of the Eaton County Medical Society was held at Pine Lake, July 25.

COUNTY SOCIETY NEWS

It is the Editor's desire to have this department of the Journal contain the report of every meeting that is held by a Local Society. County Secretaries are urged to send in these reports promptly

BRANCH COUNTY.

The Branch County Medical Society held its sixth annual picnic at Pleasant Ridge on the 16th of July. Notwithstanding unfavorable weather conditions, there were present a sufficient number of physicians with their families to make the occasion particularly enjoyable. An excellent dinner was served by a committee of ladies on the porch of the hotel.

A business meeting of the Society followed the dinner and the matter of the Patriotic Fund recently returned to the Society by the State Committee was taken up, and it was decided that the money should be placed to the credit of the Patriotic

Fund of the Society, subject to the order of the Patriotic Committee, until the end of the war.

G. H. MOULTON, *Secretary*.

EATON COUNTY.

The fourth regular meeting of the Eaton County Medical Society was held at Pine Lake, Olivet, Michigan, Thursday, July 25. The Scientific Program was as follows:

"Goitre and When to Operate"—A. E. MacGregor, Battle Creek.

General Discussion to follow.

If you have any interesting goitre cases arrange to have them at the meeting at 2:30 p. m.

Dextri-Maltose No. 2, Mead's.—A mixture containing approximately maltose, 23.1 per cent.; dextrin, 42.6 per cent., and moisture, 4.3 per cent. On the claim that maltose is more readily assimilable than other forms of sugar, Mead's dextri-maltose No. 2 is proposed for use in the diet of adult invalids. Mead Johnson & Co., Evansville, Indiana.

Book Reviews

LOCAL AND REGIONAL ANESTHESIA, including Analgesia. By Carroll W. Allen, M.D., of Tulane University, New Orleans, with an introduction by Rudolph Matas, M.D., of Tulane University, New Orleans. Second Edition, Reset. Octavo of 674 pages with 260 illustrations. Philadelphia and London: W. B. Saunders Company, 1918. Cloth, \$6.50 net.

Since the demonstration of the anaesthetic properties of cocain by Karl Köller at Heidelberg in 1884 until the present date a wonderful progress has been made in the field of local anaesthesia. The fact that to-day from 60 to 70 per cent. of operations which formerly required general insensibility can now be done with only peripheral anaesthesia is an evidence of the universal demand for such a method and the enthusiastic labor that has been devoted to its attainment.

Dr. Matas has been an early pioneer in this work and himself introduced many of the special operations such as injection of the 2nd and 3d divisions of the trigeminus. In all this work Dr. Allen has been a close associate. The book, therefore, is not a hasty collection of abstracts and pictures built upon a pretentious outline but, on the contrary, reflects in every page the patient toil of years of investigation and practice.

It is a work that may well deserve to rank among the classics in American medical literature.

THE PROTEOMORPHIC THEORY AND THE NEW MEDICINE. By Henry Smith Williams, B.Sc., M.D., LL.D. Published by The Goodhue Co., New York.

The title of this book, it will clearly be seen, is frankly ambitious. The euphony of it, however, is disappointing as the revolutionizing thoughts it suggests fail to materialize into anything substantial or well founded. It is possible that the author through his own sophistry has been sincerely misled into believing that he has discovered the panacea for all human ills, a Ponce de Leon fountain, that will banish the terrors of all disease from cancer to whooping cough. If so, he has our condolences.

We would gather from the perusal of this work that all practices previous to this marvelous innovation were altogether empirical whereas, here we have the only true science. Under the caption "scientific medicine versus empiricism," we read "no man knows how or why morphine or strychnine or atropine or digitaline produce their perennially observed and perfectly recognized effects. With the proteals the case is different." That his own knowledge of pharmaco-dynamics is limited is fairly well demonstrated when he speaks of the affinity of strychnine for the brain cells, it being quite definitely established a number of years ago that strychnine has no direct action on the brain tissues whatever.

There are many fallacies in his argument that

space does not permit us to point out. For example, we refer to his assumption that bacterial toxins have the same molecular composition as polypeptids. The basis for this seems to be the analogy between the hydrolysis of poly-peptides by specific ferments and the neutralization of toxins by specific antibodies. Likewise, the attempt to assign to the red blood cells the function of active immunity is decidedly unconvincing.

The therapy the author proposes as a result of these many vague inferences consists of the subcutaneous administration of numerous vegetable protein extracts. Here, indeed, he has seized on something that has been demonstrated to be of value in numerous instances. The author claims most of the credit, preferring to ignore the work along this line of Jobling, Dziembowski, Miller and Lusk, and others that could be mentioned.

We have always admired the erudition and literary power displayed in Williams' writings but we believe his speculations in this field of biological investigation do him scant credit.

A LABORATORY MANUAL OF QUALITATIVE CHEMICAL ANALYSIS. By A. R. Bliss, Jr., M.D., Ph.G., Professor of Pharmacology, School of Medicine, Emory University Atlanta, Ga.; formerly Professor of Chemistry and Pharmacology, Graduate School of Medicine, University of Alabama. Second Edition, Revised and Reset. 194 pages, with working tables. Philadelphia and London: W. B. Saunders Company, 1918. Cloth, \$2.25 net.

Received.

1917 COLLECTED PAPERS OF THE MAYO CLINIC, Rochester, Minn. Octavo of 866 pages, 331 illustrations. Philadelphia and London: W. B. Saunders Company, 1918. Cloth \$6.50 net.

These papers touch on a great many subjects of recent and decidedly important interest to surgeons. Based as they are on the abundance of clinical material and research and library facilities that the Mayo Institution offers they have a very great value and have been written in an exceedingly able manner.

Aside from papers dealing with newer methods of technique in operations such as prostatectomy, gastro-enterostomy, cleft palate, etc., there are many papers dealing with such entirely new subjects as Trench-foot, Transplantation of Whole Organs, Resection of Lobes of the Lungs, and The Production of Anti-Poliomyelitis Serum in Horses.

ESSENTIALS OF DIETETICS FOR NURSES. By Maude A. Perry, B.S. Formerly Dietitian and Instructor in Dietetics at Michael Reese Hospital, Chicago, Illinois; Corresponding Secretary of the American Dietetic Association; Red Cross Dietitian for Base Hospital Unit No. 1. Published by C. V. Mosby Co.

This volume represents a course in Dietetics which should prove a wonderful text book for the nurse in training and a splendid book of reference for the graduate nurse. It is very compact and as the title infers, gives the essentials of practical dietetics.

The book is comprised of two sections, each subdivided so that facts contained are easily accessible. Altogether it is well worthy of being considered an admirable book to be added to the list of nurses' text books.

CYSTOSCOPY AND URETHROSCOPY. By Georges Luys, former interne, Hospitals of Paris; former assistant in Urological Department at the Laribosiere Hospital; Laureate of the Faculty of the Academy of Medicine. Translated and edited with additions by Abr. L. Wolbarst, M.D., New York. Price \$7.50.

While a great deal of credit must be given to the originality and enthusiasm of American workers in this field, nevertheless, a treatise by so prominent a French author as Luys will be met with a great deal of interest. We believe that cystoscopy is a highly perfected specialty requiring years of training. Therefore, a book on this subject dealing as this one does, with so much of the technical side of it, will be of concern to the urologist rather than to the general practitioner. The volume contains the observations and studies of fifteen years devoted to this work and includes perhaps the best historical review of endoscopy and cystoscopy that has yet been written. The colored plates are very well chosen and interesting to say nothing of the numerous drawings with which the text is illustrated.

THE TREATMENT OF WAR WOUNDS. By W. W. Keen, M.D., L.L.D., Emeritus Professor of Surgery, Jefferson Medical College, Philadelphia. Second Edition, Reset. 12mo. 276 pages, illustrated. Philadelphia and London: W. B. Saunders Company. 1918. Cloth, \$2.00 net.

Dr. Keen is one of the few medical officers who has been privileged to study at first hand the latest methods of the leading authorities in this branch of surgery. The exhibition in one morning of eighty compound fractures treated by the Carrel-Dakin method is only an incident in the work which led to the publication of this volume.

The book is very concise and entirely devoted to practical measures of treatment. While entirely free from personal prejudice the directions for the management of all sorts of injuries are very definite.

Miscellany

Antipneumococcic Serum, Polyvalent, Mulford.—Prepared by immunizing horses with dead and living pneumococci of the three fixed types (Types I, II, III). Marketed in double ended vials containing 50 Cc. each, with sterile needle and tubing for intravenous injection. H. K. Mulford Co., Philadelphia, Pa. (*Jour. A. M. A.*, June, 22, 1918, p. 1923).

Antipneumococcus Serum.—A serum obtained from horses immunized with virulent pneumococci. Each lot of antipneumococcic serum is submitted by the manufacturer to the U. S. Hygienic Laboratory for potency test. Early massive (from 50 Cc. to 10 Cc.) intravenous doses of a highly potent serum prepared from the type of pneumococcus present in the case to be treated are necessary. The serum used should be obtained from an animal with pneumococci of the type corresponding to that present in the special case under treatment. Thus far Type I serum alone seems to be on reasonably secure clinical grounds.

Sodium Versus Potassium.—When the embargo was declared on Germany, the price of potassium

salts in this country began to soar. Now steps are being taken for the production of potassium in this country. In the meantime the plentiful sodium salts may, in most cases, be used instead. There is no evidence that potassium salts are superior therapeutically to sodium salts, and they are very much cheaper. Sodium acetate, sodium bicarbonate, sodium bromid, sodium chlorate and sodium hydroxid are among the sodium salts which may with advantage replace the corresponding potassium salts. (*Jour. A. M. A.*, June 1, 1918, p. 1601).

Misbranded Nostrums.—The following preparations have been investigated by the Federal authorities and their proprietors convicted under the Federal Food and Drugs Act: Dr. Swan's Liver and Kidney Remedy, containing alcohol, sugar, glycerin, sodium salicylate, strychnin and some laxative plant drug, with indications of juniper.—Stuart's Calcium Wafers, containing strychnin, despite the claim that it contained no poisonous ingredient.—Turpentine Man's or Tyding's Remedy, a glucose sirup containing potassium iodid, alcohol and traces of salicylic acid, phosphates, calcium and alkaloids.—Henry's Red Gum Compound, containing heroin, chloroform, alcohol, glycerin and sugar.—Athlophoros, a solution of glycerin, sodium salicylate, oil of cinnamon and water.—Dr. Thatcher's Cholera Mixture, containing alcohol, morphin, a laxative drug, sugar and aromatics.—Dr. Thatcher's Amber Injection, containing alcohol, opium and zinc sulphate to which acetic acid had been added.—Abbott Bros. Rheumatic Remedy containing 24 per cent. alcohol with 5 grains potassium iodid to each teaspoonful with extracts of drugs such as sarsaparilla and dandelion. (*Journ. A.M.A.*, June 1, 1918, p. 1624).

Prescription A-2851.—Eimer and Amend write that the reported analysis of their "rheumatism remedy," Prescription A-2851, by the Louisiana State Board of Health was incorrect in that it failed to state that 45 per cent. of it was wine of colchicum and in that it contained 9.3 per cent. and not 7.5 per cent. of potassium iodide. On the basis of the manufacturer's statement, each dose of the remedy contains 27 minims of wine of colchicum—almost a full dose. Colchicum is so uncertain that its use in products of the home remedy type should be unhesitatingly condemned (*Jour. A.M.A.*, June 20, 1918, p. 215).

Vaderol.—A rather expensively prepared advertising card, forwarded by a medical officer in France to the Surgeon General's office in Washington, read: Urinary Duets—Ancient and Recent Runnings—Cystitis, Prostaticis, Filaments—Speedy and Radical Recovery by means of the Vaderol—Used in the Urological Establishments of the Armies. The card is an interesting evidence of the attempt of a French patent medicine maker to exploit the English speaking soldier now in France (*Jour. A.M.A.*, July 20, 1918, p. 215).

Micrococcus Neoformans Vaccine.—This was admitted to New and Nonofficial Remedies in 1910 since at that time it gave some promise of therapeutic value. It has now been omitted because at

the present time there is no evidence that the vaccine is of the slightest value and because its lack of value is demonstrated by the fact that during these years it has not made a recognized place for itself in therapeutics. The available information indicates that the micrococcus neoformans does not differ materially from ordinary skin cocci which are described in New and Nonofficial Remedies under staphylococcus vaccine (Reports of the Council on Pharmacy and Chemistry, 1917, p. 152).

NuTone.—This "nutritive tonic" is said to have the following complex composition: Cod Liver Oil, Pure Norwegian, 25 per cent., Malt Extract, 9½ per cent., Beef Juice, Glycerine, Hypophosphite Lime, Hypophosphite Soda, Chemically pure, 1½ grs. each to the oz., Fl. Ext. Nux Vomica, 3-64 of a minim in each teaspoonful. It is advertised with claims that will lead thoughtless physicians and a confiding public to depend on it in cases in which fresh air, hygienic surroundings and nutritious food are prime importance. Adults are to take this preparation as a "nutritive" in doses which represent from 3 to 12 grains of sugar and 8 to 30 minims of cod liver oil with unstated, but probably equally small, amounts of beef juice. The Council on Pharmacy and Chemistry declared NuTone inadmissible to New and Nonofficial Remedies because it is an irrational, shotgun mixture advertised indirectly to the public with unwarranted therapeutic claims and a non-descriptive therapeutically suggestive name (Reports of the Council on Pharmacy and Chemistry, 1917, p. 154).

Proteal Therapy.—Henry Smith Williams, who expounds the use of his "Proteals" for the treatment of cancer, tuberculosis and many other diseases, is better known in the journalistic world than in the field of scientific medicine. A few years ago, Dr. Williams appeared interested in the Autolysin treatment of cancer which at that time was being exploited. The present "Proteal" treatment appears to be a modification of the "Autolysin" treatment. Dr. Williams, in attempting to justify the use of his "Proteals" in tuberculosis, cancer, rheumatism, etc., takes advantage of certain investigations bearing on the non-specific reactions resulting from the parenteral injection of foreign proteins (*Jour. A.M.A.*, July 6, 1918, p. 58.)

Ophthalmol (Lindemann).—The Council on Pharmacy and Chemistry publishes a report declaring Ophthalmol (Lindemann) inadmissible to New and Nonofficial Remedies. The preparation is advertised for the treatment of eye diseases. It is said to be an oily solution of "glandular extract of the fish *Cobitis fossilis*," but its composition is not definitely declared. The Council rejected Ophthalmol (Lindemann) (1) because the use in eye of an irritant of secret composition and of uncertain activity is unscientific and against the interest of public health; (2) because Ophthalmol is of secret composition, and (3) because no evidence has been submitted to substantiate its superiority over established methods of treatment (*Jour. A.M.A.*, July 6, 1918, p. 59.)

The Italian Consumption Cure.—Daily papers

have purported to give an account of a new alleged cure for pulmonary tuberculosis said to have been "discovered" by Professor Domenico LoManaco, of Rome. The treatment is said to consist of the subcutaneous injection of sugar—the particular form of sugar not being specified. Italian medical journals and medical publications from other European countries appear to contain no reference to this latest "discovery" (*Jour. A.M.A.*, July 13, 1918, p. 142.)

Silvol Inadmissible to N.N.R.—The Council on Pharmacy and Chemistry reports that Silvol (Parke, Davis & Co.) is a silver protein preparation of the Argyrol type. Its physical properties are similar to those of Argyrol, and, like Argyrol, it is said to contain about 20 per cent. of silver. Like Argyrol it is non-irritant to the nasal mucosa in 10 per cent. solution. About the same claims are made for the local use of Silvol as are generally made for Argyrol, and these may be accepted. In addition, however, claims are made which are doubtful and which require substantiation. As the manufacturers have presented no evidence for their highly improbable claims, and as they have not signified any intention of making their claims agree with substantiated facts, the Council declared Silvol inadmissible to New and Nonofficial Remedies (*Jour. A.M.A.*, July 13, 1918, p. 140.)

Ungtol.—This is a paste stated by the R. R. Rogers Chemical Co., San Francisco, Cal., to contain approximately 40 per cent. metallic mercury in a soap base. It is sold as a substitute for mercurial ointment with the claim that it is more efficacious. The Council on Pharmacy and Chemistry declared Ungtol inadmissible to New and Nonofficial Remedies because the claim for superiority over mercurial ointment is not substantiated and constitutes an unwarranted therapeutic claim; the name does not indicate the composition of this pharmaceutical mixture and because the circular wrapped with the trade package advertises proprietary preparations not accepted by the Council (Reports of the Council on Pharmacy and Chemistry, 1917, p. 162).

V-E-M Products.—The Schoonmaker Laboratories, Inc., New York, market V-E-M Unguentum Eucalyptol Compound, V-E-M with Ichthyol, V-E-M with Stearate of Zinc, V-E-M with Camphor, V-E-M with Boric Acid. The Council on Pharmacy and Chemistry declared these preparations in conflict with its rules because unwarranted therapeutic claims were made for them; because the public was advised to depend on them in the treatment of diseases and because these combinations of ingredients in fixed proportions under proprietary names are irrational (Reports Council on Pharmacy and Chemistry, 1917, p. 163).

Dextri-Maltose No. 3, Mead's.—A mixture containing approximately maltose, 52 per cent.; dextrin, 41.7 per cent.; potassium carbonate, anhydrous, 2 per cent., and moisture, 4.3 per cent. In the belief that an addition of potassium salts counteracts a tendency to constipation, it is said to be particularly adapted in the feeding of constipated infants. Mead Johnson & Co., Evansville, Indiana. (*Jour. A.M.A.*, July 20, 1918, p. 193.)